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thesis entitled

PLANNING FOR THE KNOWLEDGE ECONOMY: AN ANALYSIS OF MICHIGAN PLANNERS RESPONSIVENESS TO THE KNOWLEDGE ECONOMY AT A REGIONAL LEVEL

presented by

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has been accepted towards fulfillment
of the requirements for the

M.U.R.P. degree in Urban and Regional Planning

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2 August 2006

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# PLANNING FOR THE KNOWLEDGE ECONOMY: AN ANALYSIS OF MICHIGAN PLANNERS RESPONSIVENESS TO THE KNOWLEDGE ECONOMY AT A REGIONAL LEVEL

By

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A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

MASTER OF URBAN AND REGIONAL PLANNING

Urban and Regional Planning Program

2006

ABSTRACT

PLANNING FOR THE KNOWLEDGE ECONOMY: AN ANALYSIS OF MICHIGAN PLANNERS RESPONSIVENESS TO THE KNOWLEDGE ECONOMY AT A REGIONAL LEVEL

By

Eric William Frederick

The global economy is changing from one based on resource-intensive production to an economy based on the capitalization of knowledge. This "knowledge economy" is fueled by many factors; the most prominent and influential factor contributing to its development is information and communications technology (ICT). Because knowledge affects every economic facet, there are multiple stakeholders that could influence its development, including urban and regional planners. Michigan, a state with an economy deeply rooted in a resource-intensive manufacturing industry, has seen the decline of jobs related to production and an increase of employment in knowledge economy occupations.

This research examines the current state of planner responsiveness to the knowledge economy and ICT in Michigan at a regional scale. A survey conducted in 2005 captured Michigan planners' perceptions and opinions of, and experiences with ICT and the knowledge economy. Regional, spatial, and temporal analyses are conducted and policy recommendations suggested.

ACKNOWLEDGMENTS

I would like to acknowledge the assistance of the following individuals and groups for their contributions to the success of my educational career:

- My parents for their lifelong commitment and sacrifice to my brother and I for the pursuit of our dreams;
- Dana Swaney, for her continued support and encouragement;
- Dr. Kenneth Corey, Dr. Mark Wilson, and Dr. Ellen Bassett, for expanding my understanding of the world around me;
- Dawn Brown, for her ability to answer even the most obscure of questions; and
- Northern Michigan University Geography Department, for the foundation upon which I have built my education.

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# Chapter 1.0
# Overview of the Research

## *1.1 Origin of the Research*

The global economy is changing from one based on resource-intensive production (those industries in which the primary inputs of production are founded in natural resources) to an economy based on the capitalization of knowledge and creativity. This "knowledge economy" is fueled by many factors; however, the most prominent and influential factor contributing to its development is information and communications technology (ICT). Because knowledge affects every facet of the economy, there are multiple stakeholders that could influence the development of the knowledge economy, including urban and regional planners. Michigan, a state with an economy deeply rooted in a resource-intensive manufacturing industry (i.e. the automotive industry) has seen the decline of jobs related to production and an increase of employment in knowledge economy occupations. This research attempts to examine the influence of urban and regional planners upon the development of the knowledge economy and ICT.

The majority of this research has been inspired by the works of several authors including Graham and Marvin (*Telecommunications and the City*), Florida (*The Rise of the Creative Class*), Kotkin (*The New Geography*), Horan (*Digital Places*), and Corey and Wilson (*Information Tectonics*). These authors, among others, have examined advancing information and communication technologies (ICT) and its effects on economies and society. ICT is a significant foundational element of the knowledge economy, an economic trend that has gained increasing importance in national, state, and global economies over the last twenty years. As the knowledge economy has become

more prominent, traditional industries, those founded in natural resource intensive production, have been decreasing in importance.

As stated previously, Michigan is a state with an economy deeply rooted in the automotive industry, a resource intensive economic sector. The state faces a devastating loss of jobs and revenue from the closure of production facilities and overall decline in manufacturing industries. The successful transition to a knowledge economy could provide remediation from this situation and aid in providing economic development options for the state. The knowledge economy is a broad and expansive topic, with multiple stakeholders involved with its development and promotion.

Policy makers at all levels of government are influential in the development of the knowledge economy. However, there has been little research completed regarding the role of the urban and regional planner in the development of the knowledge economy, specifically in regards to ICT. Planners, in the role of visionary and economic developer, could have an influential role in the permeation of the knowledge economy in Michigan.

Planning, by definition, is the process of formulating goals and agreeing upon the manner in which these are to be met (Cullingworth 1997, 6). It is the process by which agreement is reached on the ways in which problems are to be debated and resolved. Planning is also forward-looking; it seeks to determine future action (Cullingworth 1997, 6). Urban and regional planning, therefore, is the act of applying this general definition of planning, from Cullingworth, to definitive geographic locations toward the formulation of community goals and the solving of community problems (whereas community is simply defined as a group of people living in close proximity in a particular area). As stated previously, urban and regional planners in Michigan, in the role of visionary and

action mobilizing facilitator, could have an influential role in the development of the knowledge economy. "Planners cannot predict the future, but they do use rational analysis and practical judgment to anticipate and envision it (Hoch 2000, 3)." This statement holds true when planning in the context of the knowledge economy and ICT. Planners must have the ability to recognize the changing nature of the economy as well as the changing needs of the business community, in regards to ICT, and plan accordingly.

While communities are required to have a master or comprehensive plan as the basis for their zoning ordinance, there is no policy that dictates the way in which planning should be conducted or the issues to be addressed (i.e. housing, transportation, ICT, etc.). In other words, planners are not mandated or required to plan in the context of the knowledge economy and/or ICT. Because there is no standard policy for planning in the context of the knowledge economy, there are several changes that need to be made in regards to planning practice in order to facilitate planning for the knowledge economy. Corey and Wilson identified five fundamental lessons for planning practice when planning in the context of the global knowledge economy; (1) human capital (2) enterprise culture (3) mindset change (4) new governance and (5) community and regional equity (Corey and Wilson 2006). These lessons will be discussed in greater detail in Chapter 4.

Urban and regional planning is the process by which community goals are established and problems solved. Since no formal, consistent, and ubiquitous mandate exists for planners to plan in the context of the knowledge economy and ICT, planners must change current planning patterns in order to adapt to the changing nature of the economy and society.

### *1.2 Research Goals and Framework*

The goals of this research are as follows:

- To examine the nature of ICT in Michigan as it relates to the knowledge economy;
- To identify and understand how Michigan planners perceive ICT and the knowledge economy in the state at a regional level; and
- To formulate and recommend policy changes targeting the planning community and its relationship to the knowledge economy and ICT.

This research attempts to identify a relationship between the progression of the knowledge economy, specifically ICT, in Michigan and the influence of urban and regional planners in that progression. In order to identify possible correlations, a comparative analysis is performed between Michigan's fourteen planning and development regions based on the results of a survey conducted in 2005 entitled "Michigan Planners and the Knowledge Economy."

The association between urban and regional planners and the knowledge economy and ICT is analyzed at a regional level; and a framework of the planner's role in knowledge economy and ICT development is established. Apart from an influential framework, two other frameworks are established related to planners and the knowledge economy and ICT; (1) spatial and (2) temporal. By mapping the results of the Michigan Planners and the Knowledge Economy Survey, spatial patterns of planner perceptions, responsiveness, and experiences with the knowledge economy and ICT are established.

In 2001 and 2003 two regional studies were completed analyzing planner responsiveness to the digital economy. The results of these studies also are analyzed and compared to the most recent indication of planner responsiveness to the knowledge economy; the 2005 Michigan Planners and the Knowledge Economy Survey.

As stated previously, the knowledge economy is a broad and ever expanding topic of which ICT is a major underpinning. It is important to have an understanding of the knowledge economy and to identify the role of ICT in its development.

## Chapter 2.0
## Introduction to the Knowledge Economy

### *2.1 A Brief History of the Knowledge Economy*

Knowledge has always been a fundamental part of human existence. The gathering and analyzing of knowledge pertaining to the world around us has driven human decision making for millennia. The development of language and the written word spawned the transfer of knowledge from one person to the next, creating a collective intellect among individuals gathered together for a common cause. Schools and universities were formed in pursuit of knowledge and understanding of the ways of nature and society. With the invention of the printing press during the 15th century, information and knowledge could be spread more quickly throughout the world. During this time, developed economies were driven by labor and land. Without these two factors the creation of wealth was not possible. At the end of the 18th century the industrial revolution began to change the way business was conducted. Shifting away from labor and land as the primary factors driving the economy, labor (or energy) and capital were now the wealth creation instruments of the industrial revolution.

Currently there is another revolution taking place in the economy. Over the last thirty years, information and knowledge have become major factors controlling wealth creation. This "knowledge economy" has and continues to be facilitated by the advancement of information and communications technology (ICT). Just as the printing press aided in the proliferation of information during the 15th century, ICT development has made available more information to more people than ever before in history. The competitive advantages of companies in the knowledge economy are no longer seated principally in labor or capital but in a company's ability to utilize new technologies,

virtually overnight, and to develop new and more efficient processes of innovation. With more powerful technology and means of communication becoming increasingly mobile, innovation and knowledge development can occur anywhere lessening corporate reliance on physical location. The further development of ICT coupled with human creativity will aid in the perpetuation of the knowledge economy.

### *2.2 Defining the Knowledge Economy*

Several definitions of the knowledge economy, also known as the new economy or creative economy, exist in the literature. These definitions range from the simple to the complex but all attempt to give a comprehensive outline of an ever expanding economic condition. Robert Huggins, the noted British economist defines the knowledge economy, "...as the capacity and capability to create and innovate new ideas, thoughts, processes, and products and to translate these into economic value-added and wealth creation (Huggins 2002, 2)."

Other definitions include the following from the "Smart Queensland: Smart State Strategy 2005-2015:"

> A knowledge economy is based on the production, distribution and use of knowledge as the main driver of growth, wealth creation and employment across all industries. It does not rely solely on a few high technology industries for growth and wealth production, but also on the application of knowledge in traditional industries such as mining and agriculture (Queensland 2005, 42).

Note also the following definition from the Organization for Economic Co-Operation and Development:

> Knowledge-based economies are economies directly based on the production, distribution and use of knowledge and information (OECD 1999, 7).

While several definitions for the knowledge economy exist, the definition quoted from Robert Huggins will be the definition employed for the purposes of this research (Huggins 2002, 2).

### *2.3 Role of the Knowledge Economy in the United States Economy*

During the last twenty years, the knowledge economy has and continues to play an ever increasing role in the United States economy. However, measuring the knowledge economy and its effects has been a contested issue. Just as there are various definitions of the knowledge economy itself, there is also a debate as to what economic sectors and industries compose the knowledge economy. As stated in the definition of the knowledge economy from the "Smart Queensland: Smart State Strategy 2005-2015," the knowledge economy does not rely on specific high-technology industries alone but also on the application of knowledge and information in traditional industries (Queensland 2005, 42). For this reason, it is important to analyze not only economic sectors where the majority of workers are knowledge workers but also to analyze knowledge workers across all industries. In his book "The Rise of the Creative Class," Richard Florida identifies ten cross-sectoral occupational groups that can be defined as "knowledge" occupations (Florida 2002, 328). Florida views creativity and innovation as the major components of the knowledge economy and has identified the occupations driving the knowledge economy. These occupations are as follows:

Table 1. Knowledge Occupation Sectors

| | |
|---|---|
| 1 | Computers and Mathematics |
| 2 | Architecture and Engineering |
| 3 | Life, Physical, and Social Sciences |
| 4 | Education, Training, and Libraries |
| 5 | Arts, Design, Entertainment, Sports, and Media |
| 6 | Management |
| 7 | Business and Financial Operations |
| 8 | Legal |
| 9 | Healthcare and Technical Practitioners |
| 10 | High-end Sales and Sales Management |

Source: Florida 2002, 328

Florida also identifies occupations based on traditional working-class economic ideals. These are termed as traditional occupations and are as follows:

Table 2. Traditional Occupation Sectors

| | |
|---|---|
| 1 | Construction and Extraction |
| 2 | Installation, Maintenance, and Repair |
| 3 | Production |
| 4 | Transportation and Material Moving |

Source: Florida 2002, 328

For the purposes of comparative analysis in this research, the occupations listed above in the two distinct lists will be designated as "knowledge occupations" and "traditional occupations" respectively. Figure one displays the trend of both knowledge and traditional occupations as a proportion of total employment for the United States and Michigan.

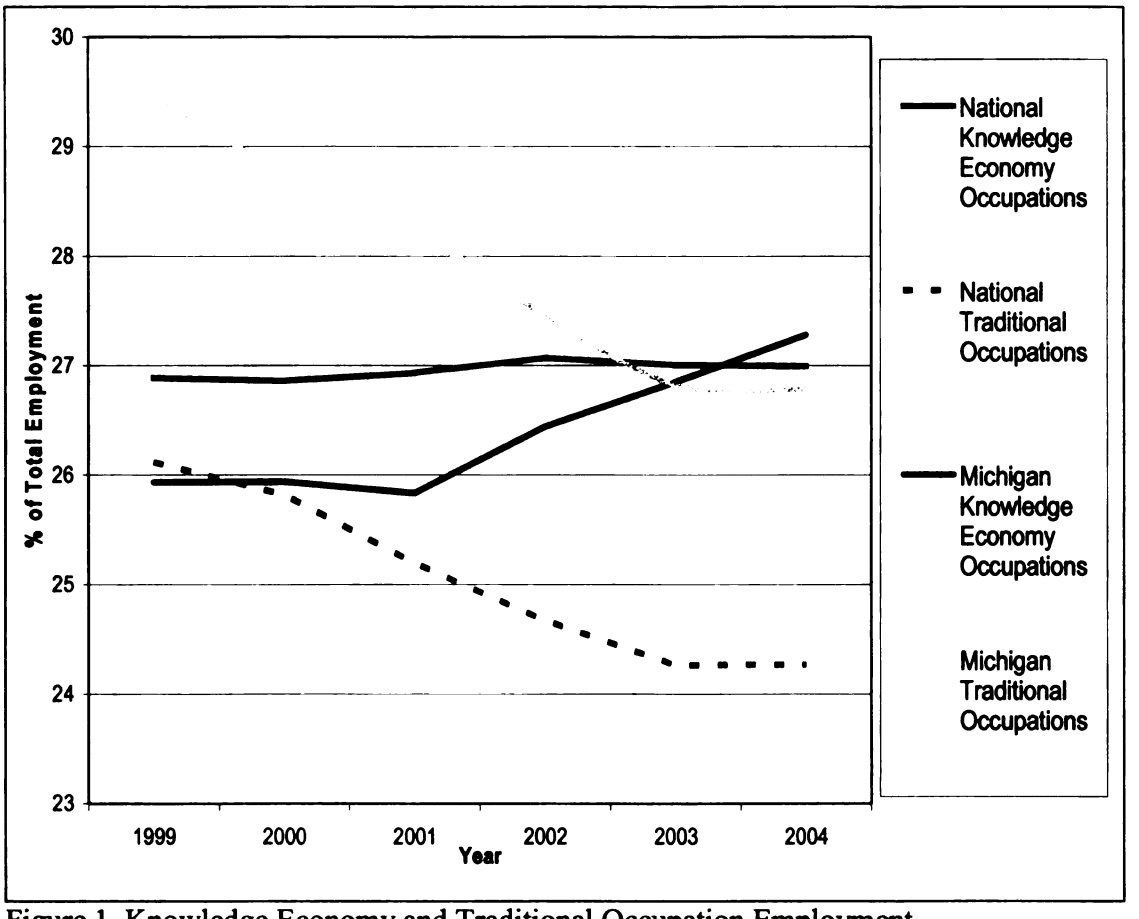



Figure 1. Knowledge Economy and Traditional Occupation Employment
Source: United States Bureau of Labor Statistics, 2004

As shown in the chart, the percentage of knowledge occupations is increasing while the number of jobs in traditional occupations is decreasing at both the national and state levels.

Richard Florida views the United States and the world as being forced to embrace an economy no longer focused on resource-intensive industries but one powered by human creativity and advances in information and communications technology (ICT) (Florida 2002). These two factors, human creativity and ICT, are the two major underpinnings of the knowledge economy. While these two characteristics are critical to

a region's success in the knowledge economy, there are several other characteristics that set the knowledge economy apart from a traditional economy.

In 1999, the Progressive Policy Institute developed the "State New Economy Index" in an attempt to measure and rank each state on its development in the knowledge economy (Atkinson 2002, 3). Characteristics of both the "old economy" and "new economy" were analyzed and a series of indicators were developed in order to quantify the knowledge economy. Table 3 outlines these differentiating characteristics.

Table 3. Old Economy and New Economy Comparison

| Issue | Old Economy | New Economy |
|---|---|---|
| **Economy-Wide Characteristics** | | |
| Markets | Stable | Dynamic |
| Scope of Competition | National | Global |
| Organizational Form | Hierarchical, Bureaucratic | Networked, Entrepreneurial |
| Potential Geographic Mobility of Business | Low | High |
| Competition Between Regions | Low | High |
| **Industry Characteristics** | | |
| Organization of Production | Mass Production | Flexible Production |
| Key Factor of Production | Capital/Labor | Innovation/Knowledge |
| Key Technology Driver | Mechanization | Digitization |
| Source of Competitive Advantage | Lowering Cost Through Economies of Scale | Innovation, Quality, Time to Market, and Cost |
| Importance of Research/Innovation | Moderate | High |
| Relations with Other Firms | Go it Alone | Alliances and Collaboration |
| **Workforce Characteristics** | | |
| Principal Policy Goal | Full Employment | Higher Wages and Incomes |
| Skills | Job-specific Skills | Broad Skills, Cross-Training |
| Requisite Education | A Skill | Lifelong Learning |
| Labor-Management Relations | Adversarial | Collaborative |
| Nature of Employment | Stable | Marked by Risk and Opportunity |
| **Government Characteristics** | | |
| Business-Government Relations | Impose Requirements | Assist Firms' Innovation and Growth |
| Regulation | Command and Control | Market Tools, Flexibility |

Source: Atkinson 1999, 5

While one of the major components of the knowledge economy is the advancement, implementation, and use of ICT, the table exemplifies a needed change in mindset at multiple levels in order to compete in the knowledge economy.

In order to determine the extent to which the knowledge economy has penetrated the United States economy, the Progressive Policy Institute chose seventeen indicators, based on the characteristics of the new economy, separated into five distinct categories that appropriately measure the knowledge economy. These categories include: (1) Knowledge Jobs (2) Globalization (3) Economic Dynamism (4) The Digital Economy and (5) Innovation Capacity (Atkinson 1999, 6). Table 4 displays the indicators identified and used in the 1999 and 2002 State New Economy Index as well as Michigan's rank for each indicator.

Table 4. 1999 and 2002 State New Economy Index Indicators and Michigan's Rank

| Category | Indicator | Michigan's Rank | |
|---|---|---|---|
| | | 1999 | 2002 |
| Knowledge Jobs | Jobs in Information Technologies Occupations | N/A | 30 |
| | Jobs held by Managers, Professionals, and Technicians | 45 | 23 |
| | Workforce Education | 31 | 23 |
| | Educational Level of the Manufacturing Workforce | N/A | 7 |
| Globalization | Export Focus of Manufacturing | 11 | 11 |
| | Foreign Direct Investment | 28 | 14 |
| Economic Dynamism | Jobs in Fast-Growing Companies | 42 | 35 |
| | Business Start-Ups and Failures | 31 | 36 |
| | Initial Public Offerings | 38 | 32 |
| The Digital Economy | Online Population | 42 | 25 |
| | Commercial Internet Domain Names | 36 | 29 |
| | Technology in Schools | 39 | 36 |
| | Digital Government | 9 | 1 |
| | Online Agriculture | N/A | 26 |
| | Online Manufacturers | N/A | 14 |
| | Broadband Telecommunications | N/A | 23 |
| Innovation Capacity | High-Tech Jobs | 34 | 36 |
| | Scientists and Engineers | 27 | 29 |
| | Patents | 10 | 20 |
| | Industry Investment in Research and Development | 1 | 10 |
| | Venture Capital | 31 | 34 |

Source: Atkinson 1999, 6

In the 1999 iteration of the "State New Economy Index," Michigan was ranked 34th of the 50 states overall (Atkinson 1999, 7). The areas in which Michigan was

ranked the highest (Patents and Industry R&D Investment) can mostly be attributed to the presence of the automotive industry in the state. Michigan was ranked among the lowest of states in "Managerial/Professional Jobs", and "Jobs in Fast-Growing Companies," because of the large percentage of jobs in the production aspect of the automotive and manufacturing industries (Atkinson 1999, 8). The majority of jobs in the automotive and manufacturing industries are neither managerial/professional, nor associated with fast-growing companies. It also can be noted that Michigan was ranked among the lowest in "Online Population" as well.

The Progressive Policy Institute repeated the "State New Economy Index" in 2002. As shown in table 4, five indicators were added to the index including: (1) Information Technology Jobs (2) Education Level of the Manufacturing Workforce (3) Online Agriculture (4) Online Manufacturers and (5) Broadband Telecommunications (Atkinson 2002, 8). The addition of these indicators aided in bringing Michigan from 34th to 23rd out of the 50 states; a significant improvement. Michigan's rank improved for most indicators, however, Michigan did falter in some areas. The two largest negative shifts in rank are for the indicators "Patents" and "Industry Investment in Research and Development." These are the same two indicators for which Michigan was ranked the highest in the 1999 iteration of the State New Economy Index (Atkinson 1999, 8). Michigan was tied with Missouri as having the highest positive overall rank improvement from 1999 to 2002 (Atkinson 2002, 7). While it is noted from the table that many of Michigan's rankings in the 2002 iteration of the New Economy Index are mediocre at best, the state has made significant improvements toward the transition to the knowledge economy.

In a traditional economy, typically all transactions involve the transfer of physical products from one party to another. This is no longer the case for a growing number of industries. The development and advancement of ICT is changing the way society communicates and conducts business. Advances in wireless communications, broadband infrastructure, and smaller and faster computing devices are making the distance between people less significant and changing the nature of the work place. Joel Kotkin, in his work "The New Geography," states "In a manner not seen since the onset of the industrial revolution, technology is reshaping the landscape of American communities (Kotkin 2002)." Kotkin argues that because of advances in technology, companies no longer need to rely on the location of their industries near critical resource inputs as inputs have changed with the shift from resources based industry to those based on knowledge and creativity.

The knowledge economy is an ever-expanding economic condition with many facets. ICT has been identified as one of the most prominent and influential underpinnings in the development of the knowledge economy.

## Chapter 3.0
## Introduction to Information and Communications Technology

### *3.1 Definition of ICT*

Technology is making more information available to more people than ever before in history. Access to scholarly papers, multimedia entertainment, and data related to healthcare and lifestyles all are examples of information more readily available via ICT. ICT is a broadly defined concept as it can relate to many areas of technology and data transmission. The definition of ICT that will be used in this research is as follows from the "Smart Queensland: Smart State Strategy 2005-2015:"

> Information and communication technology (ICT) is the catch-all phrase used to describe a range of technologies for gathering, storing, retrieving, processing, analyzing, and transmitting information (Queensland 2005, 41).

This definition is suitable for it covers a wide array of technological advances all of which can have an impact on the development of the knowledge economy. There are two distinct divisions of ICT development: digital development and intelligent development (Corey and Wilson 2003, 4).

The first division, for the purpose of this research, is termed ICT "digital development." The digital development of ICT is the physical deployment of ICT infrastructure (Corey and Wilson 2003, 4). Digital development refers to the three elements in the definition of ICT that allow a user to store, retrieve, and transmit information (Queensland 2005, 41). Examples of ICT digital development include the construction and deployment of fiber-optic broadband infrastructure for the transmission of information, research and development of faster, smaller, and more efficient digital information storage devices, and the expansion of wireless information transmission systems to enable the mobile retrieval of information. While the digital development of

ICT is critical to its function, the second division of ICT development arguably could be most important as the expansion of ICT infrastructure closes in on ubiquity.

The second division of ICT development, for the purpose of this research, is termed ICT "intelligent development." The intelligent development of ICT is the way in which ICT is put to practical use; it refers to the way in which the public, government, and the private-sector are using advances in ICT (Corey and Wilson 2003, 4). Intelligent development refers to elements of the definition of ICT that allow users to gather, process, and analyze data (Queensland 2005, 41). Examples of intelligent development include technology-enabled research and development, teleconferencing, e-commerce, and e-government. Intelligent development, however, is not only the physical use and development of advanced applications of ICT technology. Intelligent development is where development planning best practices are influenced by theory, are benchmarked, and the latest science and technologies are utilized fully to develop a community and region holistically, equitably, and multifunctionally, including amenity factors; intelligent development goes beyond digital development (Corey and Wilson 2003, 4). The intelligent development of ICT is closely tied to the knowledge economy because intelligent development gives users the capability to create and innovate new ideas, thoughts, processes, and products and to translate these into economic value-added and wealth creation as stated in the definition of the knowledge economy (Huggins 2002, 2). Digital development of ICT could be considered the "means" while intelligent development could be considered an "end" result of ICT development.

*3.2 Michigan's ICT Development Efforts*

The State of Michigan has made several steps to encourage the development of both divisions of ICT (i.e. digital and intelligent). The following is a summary of several studies, reports, and policy documents designed to promote digital and intelligent ICT development in Michigan.

### 3.21 The State Broadband Index

Purpose

In 2002, Analysys Consulting and TechNet, a bipartisan, political network of CEOs that promotes the growth of technology and the innovation economy, produced the State Broadband Index. The State Broadband Index was developed to fulfill three goals: (1) highlight the critical role that states will play in achieving a national broadband strategy and an aggressive broadband deployment goal (2) demonstrate the range of state initiatives with the potential for promoting broadband and (3) recognize those states that are effectively promoting broadband deployment and demand (Analysys 2002, 8).

The "State Broadband Index" identifies three sectors in which state policy can have an impact on broadband development: (1) deployment policy (2) supply-side policy (3) demand-side policy (Analysys 2002, 10). For each of these sectors best practice policies were developed. These best practices then were compared to existing state policy in all fifty states and a score was determined based on the state's alignment with the best practices.

Deployment Policies

In the United States, broadband deployment is typically the responsibility of private-sector companies such as Comcast, Charter, or Earthlink, among others.

Companies, such as these, extend infrastructure to a community and its residents along municipally owned rights-of-way and utility easements. Frequently, companies are required to complete a permitting and fee process to gain access to these rights-of-way in order to expand their service to new customers. Because this is a highly localized system of permitting, no two communities are often the same in their policy toward the permitting of rights-of-way access (Analysys 2002, 11). This creates a roadblock toward the ubiquitous deployment of broadband technology (Analysys 2002, 10). The following are deployment policy best practices determined for the "State Broadband Index:"

- States should adopt policies that standardize and expedite rights-of-way permitting; and
- States should limit the fees imposed for rights-of-way access (Analysys 2002, 12).

These two deployment policy best practices can aid in the proliferation of broadband throughout the state.

Supply-Side Policies

Even in a state where permitting and fees are kept to a minimum for the deployment of broadband, there still will be underserved communities without access to broadband technology (Analysys 2002, 13). Inner city and rural areas are two areas that typically are underserved by broadband connections. In a market-based economy it is in the best interest of telecommunications companies to extend broadband services to areas of a state where a maximum number of consumers can be reached with minimal infrastructure costs thus creating underserved populations in other areas (Analysys 2002, 13). The "State Broadband Index" supply-side best practice policies are specifically designed to target underserved populations aiding in the ubiquitous deployment of broadband technology:

- States should adopt a broadband strategy and formal plan;
- States should assess their broadband status through a map or catalog of existing infrastructure;
- States should allow municipalities to provide wholesale services with their own broadband networks;
- States should encourage broadband investment through innovative supply-side initiatives; and
- States should consider financial incentives for broadband deployment, in particular to underserved communities (Analysys 2002, 14).

By implementing policies such as those listed, the state can aid in the deployment of broadband to underserved communities.

The first two best practice policy sectors are concerned with the digital development and infrastructure associated with broadband technologies. However, simply having access to broadband is not enough. States must also incentivize the use of broadband technologies, or intelligent development (Analysys 2002, 17).

Demand-Side Policies

As stated previously, it is not enough to have access to broadband technology. The demand for, and continued advanced use of the technology also should be a part of a state's policy. The following are best practices associated with the demand for broadband:

- States should adopt initiatives that provide incentives for public-sector and private-sector users to access broadband networks;
- States should actively encourage broadband usage by citizens through e-government initiatives;
- States should encourage government usage of broadband applications; and

- States should consider providing financial support that encourages the development of broadband applications that improve government services, or support next-generation technologies (Analysys 2002, 18).

Governmental use of advanced broadband technologies can act as an example to other private- or public-sector organizations thereby to spurring the demand for, and use of broadband technologies.

Results

Each state was ranked according to its alignment of current state broadband policy with the best practices described previously. Table 5 displays the top ten states overall and for each of the three best practice policy sectors:

Table 5. State Broadband Index Policy Rankings

| Deployment Policy Rankings | | Supply-Side Policy Rankings | | Demand-Side Policy Rankings | |
|---|---|---|---|---|---|
| 1 | Michigan | 1 | Michigan | 1 | Michigan |
| 2 | Missouri | 2 | North Carolina | 2 | Florida |
| 3 | Kansas | 2 | Oregon | 3 | Virginia |
| 3 | Texas | 4 | Florida | 4 | Ohio |
| 3 | Washington | 5 | Colorado | 5 | California |
| 6 | Florida | 6 | Illinois | 6 | Tennessee |
| 6 | Iowa | 6 | Maine | 7 | Kentucky |
| 6 | Ohio | 6 | Ohio | 7 | Texas |
| 6 | Virginia | 6 | Pennsylvania | 9 | Arizona |
| 10 | Arizona | 6 | Wisconsin | 9 | South Carolina |

Source: Analysys 2002, 22

As indicated, Michigan out ranked other states in its policy toward broadband development. It is important to note however, that the rankings are not associated with the current degree of broadband penetration. The "State Broadband Index" is an index of state policy only and not of current broadband networks in a state. It can be assumed that, based on Michigan's outstanding performance in the "State Broadband Index," an observable impact upon infrastructure development could be seen. However, since the publication of the Index in 2002, no benchmarking efforts have been made in order to

determine the advancement of infrastructure deployment in the state. In the Index, Michigan failed the best practice pertaining to the development of a statewide broadband strategy and the development of benchmarks for the purpose of measuring the progress of such a plan. Michigan did, however, rank high among other best practices. An overview of the policies bringing Michigan to the top of the rankings follows.

### 3.22 LinkMichigan Initiative

Purpose

Developed by the Michigan Economic Development Corporation (MEDC), the "LinkMichigan Initiative" is a policy analysis and recommendations report regarding information and communications technology in Michigan. The opening paragraph of the report indicates that; "improving access to high-speed telecommunications services is the most important state economic infrastructure issue for the new century," (MEDC 2001, 2). The MEDC has recognized that the foundation of the knowledge economy is a strong investment in and promotion of advanced information and communication technologies. This being so, the overarching goal of the initiative is to "facilitate the development of the most advanced and robust telecommunications infrastructure in the country (MEDC 2001, 2)."

Recommendations

The "LinkMichigan Initiative", after analyzing several issues pertaining to ICT and Michigan including available and affordable bandwidth, education, and e-government, developed four recommendations for the state:

- Statewide Public User Aggregation. In order to provide public-service institutions (i.e. universities, public schools, government, etc.) with affordable broadband connections, the state should aggregate these users into a larger

collective in order to leverage for lower priced access (MEDC 2001, 6). With a larger entity negotiating for the availability of and access to broadband connections, the state can be assured that public entities receive the connections they require in order to conduct business in the knowledge economy.

- Tax and Permitting Fairness. As discussed in the best practices developed by the State Broadband Index, telecommunications companies must abide by local permitting and fee systems in order to deploy broadband infrastructure (MEDC 2001, 6). The "LinkMichigan Initiative" is recommending the restructuring of this, currently local, system in order to create a level playing field across the state for the deployment of broadband infrastructure. This would create a fair and easy system for telecommunications companies to receive permits and pay fees for infrastructure (MEDC 2001, 6).

- Access to Information. The "LinkMichigan Initiative" recommends that all telecommunications and information carriers be required to provide the state with detailed information regarding the location and capability of current telecommunications infrastructure (MEDC 2001, 6). This would provide economic development entities with critical information needed to conduct economic development activities in the knowledge economy. Along with network locations, quality of service standards should be developed in order to prevent delays related to telecommunications installation and service outages (MEDC 2001, 6). This would provide users of ICT with a certain degree of reliability in the infrastructure enabling them to perform their business in a more stable and efficient information environment.

- Community Assistance. The final recommendation of the "LinkMichigan Initiative" is to provide communities with financial assistance for the purpose of telecommunications planning (MEDC 2001, 7). Any community who wishes to receive aid would be required to develop an ICT plan that corresponds to the state-wide aggregation plan recommended previously (MEDC 2001, 7).

Results

To implement the "LinkMichigan Initiative", the "Michigan Hi-Speed Internet Package" of legislation (Public Acts 48, 49, and 50 of 2002) was enacted on March 14th, 2002. While no strategy to implement the recommendations of the initiative would be comprehensive enough (because of the complexity and broad spectrum of recommendations), the legislation package consisted of three bills that closely match the recommendations of the initiative:

- P.A. 48 of 2002 (or the Metropolitan Extension Telecommunications Rights-of-Way Oversight (METRO) Act) was passed based on the second recommendation from the initiative pertaining to a state-wide permit and fee system for the deployment of broadband infrastructure (P.A. 48, 2002). The bill set common fees and a maximum permit delay time period for communities across the state. It also created the METRO authority to implement and monitor the system (P.A. 48, 2002);

- P.A. 49 of 2002 created the Michigan Broadband Development Authority charged with the task of administering and monitoring a fund created to provide incentives to communities for broadband development (P.A. 49, 2002); and

- P.A. 50 of 2002 created a property tax credit as an incentive for increased broadband service deployment (P.A. 50, 2002).

The "LinkMichigan Initiative," its recommendations, and the METRO Act, the legislative backing of the LinkMichigan policy recommendations, boosted Michigan to the top of the "State Broadband Index". The recommendations and legislation are aligned with best practices pertaining to ICT development and access.

### 3.23 Smart Tech Agenda

Purpose

The "LinkMichigan Initiative", and the METRO Act which legislatively supports the policy recommendations of the Initiative, are focused on the digital development related to ICT. While infrastructure is critical to the development and advanced uses of ICT, it is not enough for the state simply to stop at policy related to the physical deployment of and access to broadband technology. The "intelligent development," or the application and use of ICT, is a critical part of any state policy (Corey and Wilson 2003, 4). MEDC's "Smart Tech Agenda" is an attempt by the state to spur the growth of advanced application of ICT, and to attract businesses utilizing ICT technology (MEDC

2001, 1). The "Smart Tech Agenda" consists of five categories of policy and programs aimed at the intelligent development of the state related to ICT:

1. Build a Critical Mass of Tech Companies. Creating clusters ready and able to support technologically advanced firms and companies is critical to the MEDC's strategy. The MEDC has developed a program known as "SmartZones" (MEDC 2001, 4). "SmartZones," designated across the state, are designed to attract and retain high-tech firms (MEDC 2001, 4). The "SmartZones" have been designated in proximity to research universities and along known high-speed broadband networks to help foster and grow small technology based businesses (MEDC 2001, 4). The MEDC also hopes that "SmartZones" will aid in the awareness and branding of Michigan as a high-technology state and destination for companies of this nature. The MEDC has also developed a program known as the Life Sciences Corridor. MEDC has established funding in order to support life sciences projects in the state (MEDC 2001, 5). Life sciences are an example of a high-technology sector utilizing advanced ICT technology. By creating a critical mass of life sciences firms, the state will be able to attract firms of the same nature (MEDC 2001, 5).

2. Ensure a 21st Century Infrastructure. The second policy category of the "Smart Tech Agenda" contains the "LinkMichigan Initiative" discussed earlier recognizing the need for continued expansion of broadband networks (MEDC 2001, 5). Another important component of intelligent development is continued educational opportunities for the maintenance of a skilled workforce. The MEDC has established several programs to support this component. Michigan Technical Education Centers, Michigan Manufacturing Technology Center, and Michigan Virtual University are three programs aimed at maintaining an educated workforce throughout the state (MEDC 2001, 6). Broadband networks and an educated workforce both are key infrastructure components for the support of human capital development in the state.

3. Facilitate Greater Access to Capital. Without the aid of financial backing, many small-businesses and technology companies would not be able to begin production or perform necessary research and development (MEDC 2001, 7). The MEDC has developed a policy to attract venture capital to the state for start-up companies. The MEDC also has developed the Emerging Technology Matching Fund. This matching fund provides grants in support of technology oriented entrepreneurial activities (MEDC 2001, 7).

4. Create an Entrepreneurial Environment. Through the support of industry and regional networks that seek to nurture and support the next generation of entrepreneurs, the MEDC is working to create an entrepreneurial environment in the state (MEDC 2001, 8). The MEDC also sees the promotion of technology

transfer from university research and development to new company formation as a means to support the creation of such an environment (MEDC 2001, 8).

5. Sustain the Image of the State as a High-Tech Work Location. Critical to the intelligent development of the state is the attraction and retention of talented individuals to fill the high-technology positions created by other state initiatives (MEDC 2001, 8). Several MEDC policies target this goal: (1) Out-of-State Worker Recruitment Campaign and (2) College Graduate Retention and Recruitment Campaign (MEDC 2001, 8). These efforts seek to retain college graduates from Michigan universities because the state has a history of loosing a high percentage of graduates to other states. Other current programs include Michigan's Cool Cities Initiative, a program designed to attract creative and talented people to Michigan's cities. It is important to maintain a well educated workforce while at the same time bringing talented individuals from across the country to establish themselves in Michigan (MEDC 2001, 8).

Conclusion

Many of the programs discussed and outlined in the SmartTech Agenda are in place and operating efficiently while the state continues to develop policies aimed at creating an environment to stimulate ICT development. More current programs developed by the Michigan Economic Development Corporation include the 21st Century Jobs Fund, the Small Business Innovative Research/Small Business Technology Transfer Emerging Business Fund, and the Michigan Technology Tri-Corridor Fund.

### *3.3 Summary*

The development of ICT consists of two distinct divisions; digital and intelligent development (Corey and Wilson 2003, 4). The developmental aspects of these divisions are unique yet they also are dependent upon one another. Intelligent development can only progress with the continued expansion of essential digital infrastructure while intelligent development can provide more efficient and powerful infrastructure options in order to expand and enhance digital development.

# Chapter 4.0
# Michigan Planners and the Knowledge Economy Survey

## *4.1 Survey Design*

As stated previously, urban and regional planners are in the unique position to analyze community problems and help localities achieve the development potential they possess in all aspects (i.e. economic development, social interaction, education, etc.). This is critical as planners have influence over community decisions and the direction in which a community is heading. With this influence, planners could be significant in the development of the knowledge economy and information and communications technology. In order to understand the level of influence Michigan planners have in regards to the knowledge economy, a base line analysis must first be completed.

In the spring of 2005, a survey entitled "Michigan Planners and the Knowledge Economy" was developed with the purpose of gathering Michigan planners' experiences with and opinions of the knowledge economy. In order to receive a cross-section of experiences from planners of various backgrounds and perspectives, four groups of respondents were chosen to be surveyed:

- Regional Planners (Michigan's 14 planning and development regions);
- County Planners (Michigan's 83 counties);
- City Planners (16 randomly selected urban areas); and
- Private-Sector Planners (19 private consulting firms in or serving Michigan).

These four groups represent a large cross-section of planners with experience ranging from large jurisdictions to small and from both the public- and private-sectors. Both urban and rural jurisdictions also are represented by these groups. Planners

representing these different levels of planning in Michigan were expected to have different experiences and awareness levels of ICT and the knowledge economy.

The survey consisted of questions requiring both quantitative and qualitative answers from the respondents and was divided into six categories (the full survey is contained in Appendix A). The categories were chosen in order to analyze a wide array of planner opinions and experiences with the knowledge economy in relation to other aspects of the planning profession.

Category 1: Planning Issue Importance

This category asked planners to rate various issues in the planning realm. Planners were asked to rate the importance of each issue from three separate viewpoints; their own professional opinion, their perception of the level of importance placed on the issue by the agency for which they work, and their perception of the level of importance placed on the issue by the citizens they serve. ICT was listed as one of the thirteen planning issues presented. The purpose of this category was to evaluate how planners rate ICT when compared to other planning topics and to examine how planners perceive the importance of ICT to the citizens they serve.

Category 2: ICT Issue Importance

This category asked planners to rate the importance of various issues pertaining to ICT in the same manner as with the planning issue rating presented in Category 1 (i.e. professionally, agency, and citizens). The purpose of this category was to determine which ICT topics planners found most important.

Category 3: ICT Knowledge

This category was included to gather qualitative responses from planners regarding ICT. Planners were asked about the importance of ICT and if they are mandated or expected to advance their knowledge of ICT as it relates to their organization.

Category 4: Knowledge Economy Information

Planners were given the definition of the knowledge economy from Huggins discussed in Chapter One of this report and asked to give the ratio of "traditional" industries to "creative" industries in their jurisdiction. The purpose of this section was not to receive accurate ratios for each geographical area that was surveyed, but to understand the planners' perceptions of the types of industries in their area.

Category 5: Cross-Sectoral Cooperation

Cooperation among stakeholders in any jurisdiction is critical to the success of the knowledge economy as cooperation builds an enterprise culture within a community (Corey and Wilson 2003, 2). Planners were asked to rate the cooperative climate in their jurisdiction as well as the success of these partnerships for both inter-agency and inter-governmental cooperation.

Category 6: Economically Distressed Communities

In this category, planners were asked to what extent they apply ICT and knowledge economy elements to economically distressed communities in their daily practice. Regional equity is an important planner concern in all aspects of planning including ICT and the knowledge economy.

### *4.2 Individual Question Results*

In April of 2005, 132 surveys were mailed to planners in each of the four respondent categories listed previously (i.e. city, county, regions, and private-sector). Each county and regional planning agency in Michigan received a survey. Planners within each agency were chosen at random to respond. Sixteen cities were selected at random from an exhaustive list of Michigan cities with populations larger than 25,000 persons. Planners within each of the city planning offices were chosen at random to participate. Similarly, an exhaustive list of private-sector planning consulting firms was compiled and a planner was chosen at random from each firm to respond. Planners were given two weeks to respond. At the end of the two weeks, a reminder card was mailed to each recipient who had not returned their survey. By the end of July 2005, 49 surveys had been returned giving the survey a 37.1% response rate.

The response distribution is shown in Table 6.

Table 6. Survey Responses

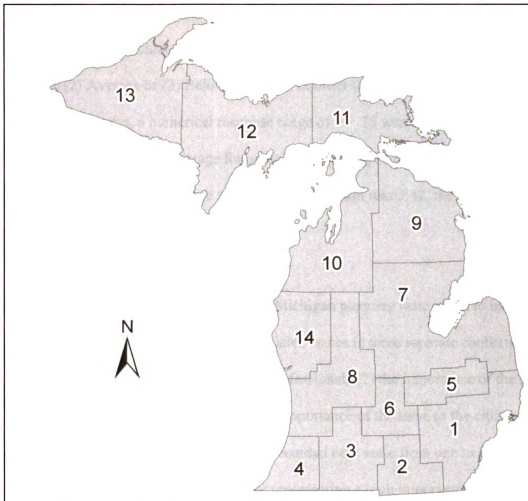
| | |
|---|---|
| Regional Planners | 9 |
| County Planners | 19 |
| City Planners | 15 |
| Private-Sector Planners | 6 |

The "Michigan Planners and the Knowledge Economy Survey" helps to gain perspective into the planners' role in ICT and knowledge economy development. The following sections provide summary results for twelve questions asked of respondents in the "Michigan Planners and the Knowledge Economy Survey".

In order to protect the anonymity of responding planners, results have been aggregated and are presented at a regional scale represented by the fourteen Michigan Planning and Development Regions. Responding public-sector planners from regional,

county, and city agencies were grouped according to their geographic location within their respective regions. For this reason, it must be noted; responses to the "Michigan Planners and the Knowledge Economy Survey" gathered from regional, county, city, and private-sector planners were received on a completely voluntary basis. Also to be noted, each region did not have the same number of responding planners. Therefore, the responses to the survey aggregated by region may or may not reflect the universe of the ICT and knowledge economy planning environment.

Responding private-sector planners were not included in the regional aggregation. An analysis of responses from private-sector planners follows in section 4.4. Figure 2 displays a map of Michigan's fourteen Planning and Development regions.




1 Southeast Michigan Council of Governments
2 Region II Planning Commission
3 Southcentral Michigan Planning Commission
4 Southwestern Michgian Commission
5 Genesse-Livingston-Shiawasee Region V Planning & Development Commission
6 Tri-County Regional Planning Commission
7 East Central Michigan Planning & Development Regional Commission
8 West Michigan Regional Planning Commission
9 Northeast Michigan Council of Governments
10 Northwest Michigan Council of Governments
11 Eastern Upper Peninsula Regional Planning & Development Commission
12 Central Upper Peninsula Planning & Development Regional Commission
13 Western Upper Peninsula Planning & Development Regional Commission
14 West Michigan Shoreline Regional Development Commission

Figure 2. Michigan Planning and Development Regions

Each section begins with an explanation of the question and the results gathered. Each section also contains a map of the fourteen Michigan planning and development

regions. These maps display how each region responded to the question compared to the average response calculated for each question for all respondents, either; (1) Above Average (2) Average or (3) Below Average. In order to categorize regions into one of the three categories, a numerical response range of +/- .25 was applied in order to establish the category of Average for questions requiring a numerical response. For instance, if the average response to a particular question was 3.42, the numerical Average range would be 3.17 – 3.67.

Question One: Planning Issue Importance

In the first question of the survey, Michigan planners were asked to indicate the level of importance of various planning related issues in three separate contexts: (1) the importance of the issue to themselves as professionals (2) the importance of the issue to the organization they represent and (3) the importance of the issue to the citizens they serve. The importance of each issue was recorded on a scale from one to five, with one representing a low importance and a five representing a high importance. The issues, shown in Table 7, were chosen because they represent broad issues planners face on a daily basis. The indicated level of importance was averaged for all respondents and Table 7 displays the issue with the highest average importance to the least for each of the three contexts described previously.

Table 7. Ranking of Planning Issues

| | Context Rank | | |
|---|---|---|---|
| **Issue** | **Professionally** | **Organization** | **Citizens** |
| Land Use and Zoning | 1 | 2 | 8 |
| Growth Issues | 2 | 3 | 5 |
| Economic Development | 3 | 1 | 2 |
| ICT | 4 | 6 | 9 |
| Employment | 5 | 5 | 1 |
| Environment | 6 | 7 | 7 |
| Housing | 7 | 8 | 6 |
| Higher Education | 8 | 10 | 10 |
| Law | 9 | 9 | 13 |
| Elementary and Secondary Education | 10 | 11 | 3 |
| Transportation | 11 | 4 | 4 |
| Historic Preservation | 12 | 12 | 11 |
| Pre-School Education | 13 | 13 | 12 |

As seen in the Table 7, ICT ranks higher than most issues to Michigan planners professionally but is less important to planning organizations as a whole and to the citizens of Michigan as perceived by planners. "Economic Development" is an even more important issue between the three contexts as perceived by planners. However, "Elementary and Secondary Education" is perceived as being more important to citizens than to planners professionally or to planning organizations while "Land Use and Zoning" are more important to planners and planning organizations than citizens.

The purpose of this question is to determine the level of importance planners, professionally, place on ICT. Figure 3 displays each region compared to the average importance rating calculated for all respondents.

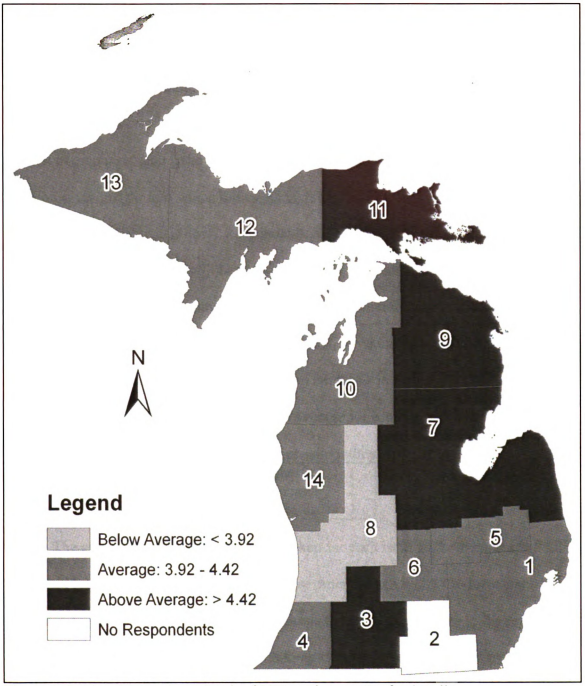



Figure 3. Regional Importance Rank of ICT to Planners Professionally

As evidenced in Figure 3, Regions 3, 7, 9, and 11 indicate a greater level of importance on ICT than other regions. Eight regions indicated a level of importance for ICT that was consistent with the average for all respondents. Region 8 is the only region giving ICT an importance that is below average.

Question Two: Planning Issue Emphasis

The second question of the Planning Issue Importance category of the survey dealt with the same planning issues presented in Question One. However, instead of rating the importance of each issue, planners were asked to give their opinion on the amount of emphasis each issue will have in the future and how much it should have. This question gives insight into which topics planners feel need to be emphasized in the future compared to their emphasis now. Respondents were given each planning issue and asked to indicate whether the issue will have less, the same, or more importance in the future and whether the issue should have less, the same, or more importance in the future. For example, "Economic Development" will have (less, the same, or more) emphasis in the future but should have (less, the same, or more) emphasis in the future. The answers were coded as follows in order to develop an average for each issue:

Table 8. Emphasis Coding

| | |
|---|---|
| Less Emphasis | 1 |
| Same Emphasis | 2 |
| More Emphasis | 3 |

The average for all respondents was taken for each issue for both contexts; "will have" and "should have." The issues then were ordered from highest to lowest according to their average score for the amount of emphasis the issue should have in the future. Table 9 lists the issues according to this ranking. While Table 9 is ordered by the issue receiving the highest average (i.e. Economic Development) for the amount of emphasis an issue should have, the issues rank for the amount of emphasis the issue will have in the future is also included.

Table 9. Future Planning Issue Emphasis

| Planning Issue | Will Have | Should Have |
|---|---|---|
| Economic Development | 2 | 1 |
| ICT | 1 | 2 |
| Growth Issues | 4 | 3 |
| Employment | 3 | 4 |
| Elementary and Secondary Education | 6 | 5 |
| Environment | 10 | 6 |
| Transportation | 5 | 7 |
| Housing | 8 | 8 |
| Land Use and Zoning | 9 | 9 |
| Higher Education | 7 | 10 |
| Historic Preservation | 11 | 11 |
| Pre-School Education | 13 | 12 |
| Law | 12 | 13 |

As exemplified in the table, planners believe "Economic Development" and "ICT" should have the most importance in the future while they also believe that they will have this importance. The largest discrepancy between the "will have" ranking and the "should have" ranking is for the issue of the "Environment". In general, planners feel that it should have a higher importance than it will have. Planners feel that the amount of importance the selected planning issues will have closely matches the level of importance they should have.

The purpose of this question is to determine how much emphasis planners feel ICT will have and should have in the future. The Average response (i.e. the majority of responses) for all planners is that ICT will have the same emphasis in the future as it does now but should have more emphasis. Above Average responses are those regions indicating that ICT will have more emphasis and should have more emphasis while Below Average responses include regions indicating that ICT will have the same emphasis and should have the same emphasis.

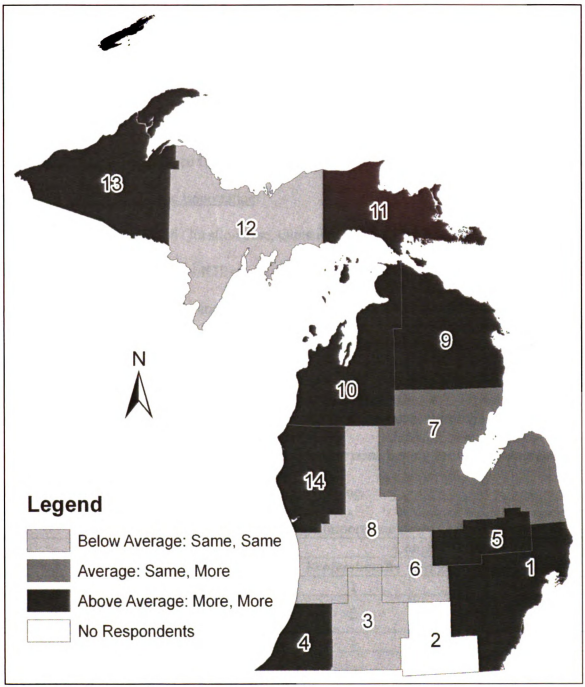



Figure 4. Indication of Future Emphasis for ICT

The majority of regions responded by indicating that ICT will have more emphasis in the future and should have more emphasis in the future (i.e. Regions 1, 4, 5, 9, 10, 11, 13, and 14). Four regions responded by indicating that ICT will have the same emphasis in the future and should have the same (i.e. Regions 3, 6, 8, and 12) while a

minority of regions indicated that ICT will have the same emphasis in the future but should have more (i.e. Region 7). Interestingly, Region 3 indicated Above Average importance of ICT (see Figure 3) but indicated that ICT should not have more emphasis in the future. Region 9, a region that also indicated an Above Average level of importance for ICT, indicated that ICT should have more emphasis in the future.

Question Three: ICT Issue Importance

Similar in design to Question One, Question Three asks planners to indicate the level of importance of various ICT related issues in the same three contexts as Question One; (1) to the planner professionally (2) to the organization the planner represents and (3) to the citizens the planner serves. Again, the importance was recorded on a scale from one to five with five representing a high degree of importance and a one representing low importance. The average importance was taken for each issue for all respondents and the issues then were ranked from the issue having the highest average importance to the lowest. Table 10 reflects this ranking.

Table 10. ICT Issue Importance

| | **Context Rank** | | |
|---|---|---|---|
| **Issue** | **Professionally** | **Organization** | **Citizens** |
| GIS and Related Technology | 1 | 2 | 7 |
| High-Speed Digital Infrastructure Deployment | 2 | 1 | 1 |
| e-Government Development and Promotion | 3 | 3 | 2 |
| Technology Related Economic Development | 4 | 4 | 6 |
| Wireless Communications Development | 5 | 5 | 5 |
| e-Commerce | 6 | 7 | 4 |
| Technology Education | 7 | 6 | 3 |

As exemplified in Table 10, "High-Speed Digital Infrastructure Deployment" and "e-Government Development and Promotion" are two issues that planners perceive as having a relatively high importance across all three contexts. Planners perceive that

"Technology Education" is important to the citizens they serve but not important to themselves or to their organizations. "Wireless Communications Development" received the same ranking in all three contexts, albeit a lower ranking, however this indicates that it is an important issue to all three contexts. As noted, planners perceived that the citizens they serve feel "GIS and Related Technology" is not an important ICT issue. This could be due to the fact that GIS is a tool, used by planners and others, that aids in better informed decision making. Citizens experience the effects of GIS used by professionals in the planning realm, but do not have direct interaction with this issue. Therefore, planners feel it is less important to citizens.

The purpose of this question is to determine which types of ICT issues planners feel are important. The ICT issues presented in Table 10 can be categorized as either digital ICT development or intelligent ICT development (as discussed in Chapter 3). Digital ICT development issues are those pertaining to the development of and the connection of users to high-speed infrastructure while intelligent ICT development issues are those that are content or application based: they are advanced uses of existing ICT infrastructure. Table 11 categorizes each ICT issue.

Table 11. ICT Issue Development Type

| ICT Issue | Development Type |
|---|---|
| High-Speed Digital Infrastructure Deployment | Digital |
| Wireless Communications Development | Digital |
| GIS and Related Technology | Intelligent |
| e-Government Development and Promotion | Intelligent |
| Technology Related Economic Development | Intelligent |
| e-Commerce | Intelligent |
| Technology Education | Intelligent |

The average rank to the planner professionally was calculated for each region and the issues placed in order from the most important to the least. The top two issues for

each region then were determined. The Average response for all responding planners was one Digital type of development and one Intelligent type development as the first and second most important issues. Above Average regions are those that ranked two Intelligent type ICT issues first and second and Below Average regions are those who ranked two Digital type ICT issues first and second.

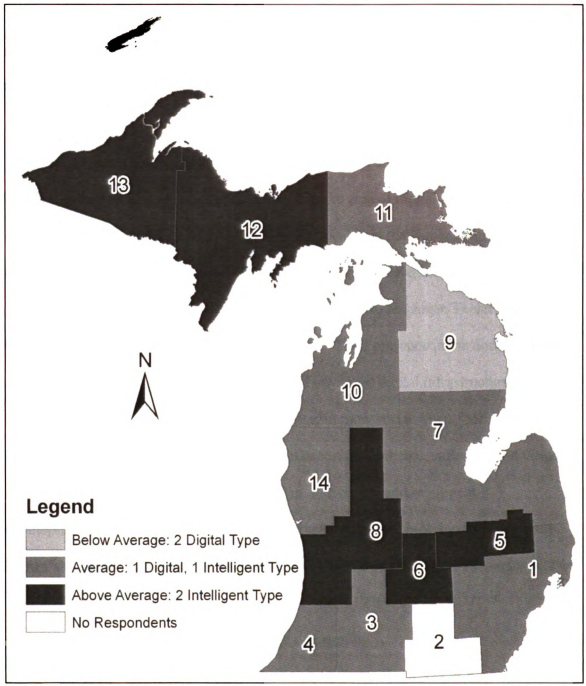


Figure 5. ICT Issue Development Type

The majority of responding regions (i.e. Regions 1, 3, 4, 7, 9, 10, 11, and 14) indicated that their two most important ICT issues include one digital ICT development issue and one intelligent ICT development issue. Region 9 indicated that the two most important issues were both digital ICT development types. Region 9 also indicated that

ICT was a very important issue (see Figure 3). From these responses it can be asserted that Region 9 is at the stage of deploying ICT infrastructure and connecting citizens and businesses to ICT while other parts of the state (namely Regions 5, 6, 8, 12, and 13) are focusing primarily on the utilization of the infrastructure already in place.

Michigan's Upper Peninsula, an area typically associated with a more rural lifestyle, is ranked Above Average or Average in the area of digital and intelligent development. The presence of three universities located in the Upper Peninsula is critical to the Above Average digital and intelligent development of Regions 12 and 13 and Average development of Region 11. Region 13 is home to Michigan Technological University, a world renowned engineering school. Their presence in the northern portion of Region 13 has facilitated the development of advanced digital infrastructure. Located in Region 12, Northern Michigan University has, in more recent years, been known for its technological innovation regarding student access to hardware, software, and virtual resources. This has helped Region 12 excel in both digital and intelligent ICT development. Lastly, Lake Superior State University, located in Region 11, is largely known as a traditional general studies institution. While this has aided advancing ICT in Region 11, it has not yet progressed as far as Regions 12 and 13.

Question Four: ICT Knowledge, Importance of Learning

The fourth question of the survey asked planners to indicate the level of importance of knowing and/or learning more about ICT as it relates to the mission and function of their organization. Respondents were asked to indicate this importance on a scale from one and five, with five indicating that it is very important for them to learn more about ICT and one indicating that it is not very important.

On average, Michigan planners felt that learning more about ICT as it relates to the function of their organization was important. This indicates that planners are aware of the importance of ICT and feel it is pertinent for them to learn more about it as it relates to their duties as a planner.

The purpose of this question is to determine how important it is for planners to advance their knowledge of ICT as it relates to the mission and function of their organization. The Average importance indicated by all planners is 3.92 on the scale from one to five. Figure 6 indicates whether each region was at, above, or below this average.

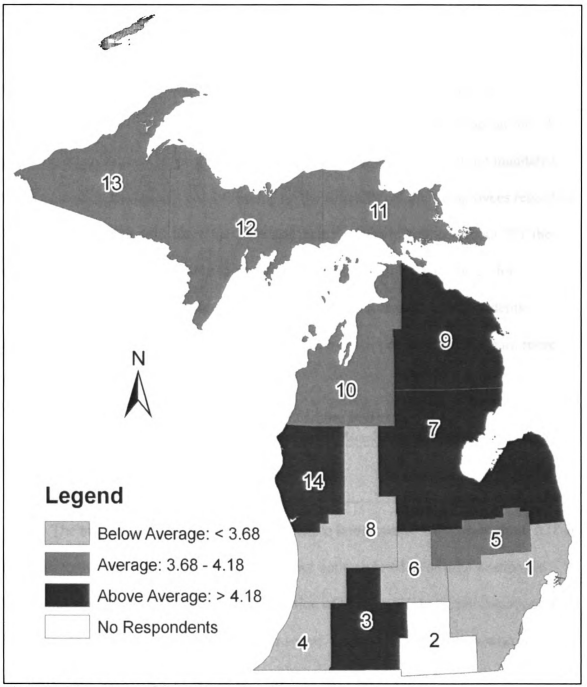


Figure 6. Importance of Knowing and/or Learning More about ICT

Regions 3, 7, 9, and 14 indicate an Above Average level of importance for knowing and/or learning more about ICT yet these regions are relatively less developed from both a digital and intelligent development stand point (see Figure 5). Region 9 is also Above Average in Figures 3 and 4 as well.

Question Five: ICT Knowledge, Mandated or Expected Learning

The fifth question from the survey asked planners whether they are expected or mandated to know and/or learn about ICT as it relates to the function of their organization. This is an important question as it gives insight into the expectations of planning organizations. If planners are expected to know about ICT but not mandated, the organization has taken a passive policy on the education of their employees regarding ICT. However, if organizations mandate that their planners learn more about ICT the organization has an active policy to equip their planners with the knowledge for advancing ICT issues in the future. Table 12 gives the percentage of respondents indicating whether they are expected or mandated by their organizations to learn more about ICT.

Table 12. ICT Learning Policy

| Organizational Policy | % of Respondents |
|---|---|
| Mandated and Expected | 10.9% |
| Neither Mandated nor Expected | 26.1% |
| Not Mandated but Expected | 63.0% |

The majority of respondents are expected to know and/or learn more about ICT as it relates to the function of their organization but not mandated. For organizations to have a passive policy for the continued education of their staff leaves learning about ICT in the hands of the individual planners themselves. The 10.9% of planners who are mandated and therefore expected to know and/or learn more about ICT are employed by organizations that feel strongly about educating their employees on the topic of ICT. A surprising 26.1% of respondents are not expected nor mandated to know and/or learn about ICT. This percentage seems high considering that planners themselves and the

organizations they work for ranked ICT as a relatively important planning issue in Question One.

The purpose of this question is to determine the policy for knowing and/or learning more about ICT of the organizations for which responding planners work. The dominant response to this question was that planners are not mandated to know and/or learn more about ICT as it relates to the function of their organization but are expected to know and/or learn more. Above Average regions are those that are both mandated and expected to know and/or learn while Below Average regions are those where planners are neither mandated nor expected to know and/or learn more about ICT.

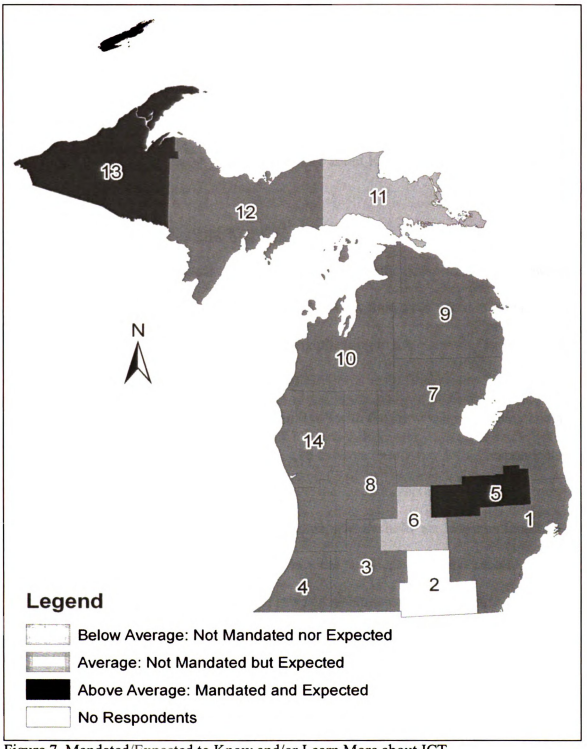



Figure 7. Mandated/Expected to Know and/or Learn More about ICT

Nearly 90% of responding planners indicate that they are not mandated to know and/or learn more about ICT as it contributes to the function of the organization they

represent. This implies that organizations do not have a formal policy for the continued education of their planners related to ICT but some expect them to keep abreast of ICT issues. Organizations in Regions 5 and 13 have a mandatory policy for continuing the knowledge of planners in relation to ICT while Regions 6 and 11 do not expect nor mandate their planners to know and/or learn more about ICT as it relates to the function of the organization.

Question Six: Familiarity with the Knowledge Economy

For this section of the survey, planners were given the definition of the knowledge economy from Huggins as stated in Chapter Two. They then were asked to rate their personal exposure to, and familiarity with doing planning in the context of the knowledge economy. They were asked to rate their familiarity on a scale from one to five, with a response of five indicating they are "very familiar" with the knowledge economy and a one indicating they are "not very familiar." The average familiarity for all respondents was 2.66 on the scale from one to five. Because the median responses on a scale from one to five is three, this suggests Michigan planners, as a whole, are less than familiar with the knowledge economy. Figure 8 displays the familiarity with the knowledge economy for each region compared to the average response of 2.66 as indicated by all responding planners.

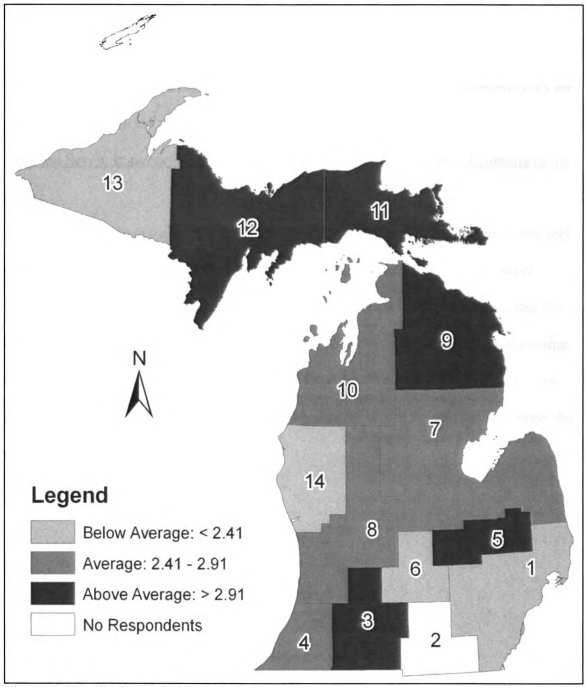


Figure 8. Familiarity with the Knowledge Economy

Regions 3, 5, 9, 11 and 12 stand out as indicating a higher than average familiarity with the concept of the knowledge economy. Region 13 is interesting in that it has a formal policy for knowing and/or learning more about ICT, however, the region is Below Average in familiarity with the knowledge economy. It is noted that Regions 1, 6, 13,

and 14 responded with at least one intelligent type ICT development issues (see Figure 5) indicate a Below Average familiarity with the knowledge economy. Therefore, it can be concluded that while these regions are moving beyond digital ICT development, they are still unfamiliar with the concept of the knowledge economy.

Question Seven: Importance of the Knowledge Economy to Michigan's Economy in the Future

The seventh question asked planners to indicate the level of importance they feel the knowledge economy will have to Michigan's economy as a whole in the future. Planners were asked to respond on a scale from one to five with five indicating that the knowledge economy will be "very important" to the state's economy and one indicating that the knowledge economy will be "not very important" to the state's economy. The average importance indicated by all responding planners was 4.43. Figure 9 displays the results of this question by region.

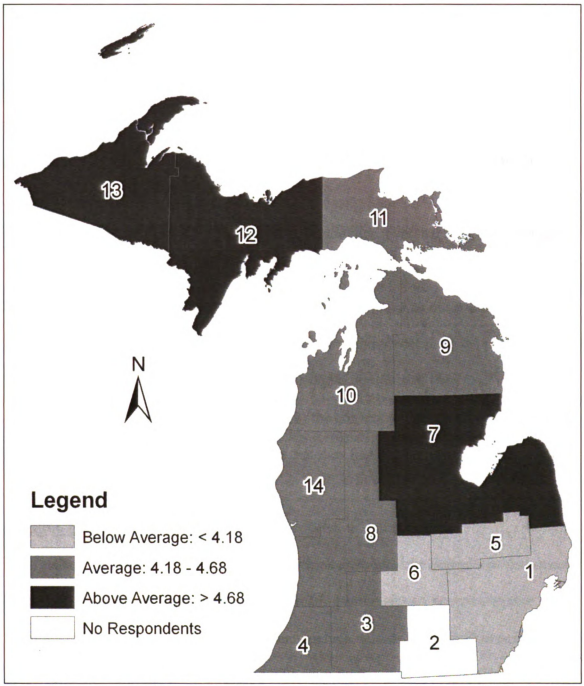



Figure 9. Importance of Knowledge Economy to Michigan's Economy in the Future

As shown in the map, the majority of regions (i.e. Regions 3, 4, 7, 8, 9, 10, 11, 12, 13, and 14) indicate the knowledge economy is "very important" to Michigan's economy in the future. With such a high average rating to this question (i.e. an average response of 4.43 on a scale from one to five), planners indicate that they understand the need for a

change in the economy. While planners believe the knowledge economy will have a high level of impact on the future of Michigan's economy, they are not very familiar with the concept of the knowledge economy and the way in which it pertains to their daily practice of planning (as shown in Figure 8). This discrepancy shows that Michigan planners realize a change in the economy is needed but are not necessarily familiar with the change taking place.

Three regions (1, 5 and 6) indicated an importance level that is Below Average. Because these regions indicate Average and Above Average responses for other questions, two conclusions could be drawn from their response to the question of knowledge economy importance to the future of Michigan's economy; (1) planners in these regions have no knowledge of the knowledge economy and, therefore, it is not present in their daily practice as planners or (2) the concept of the knowledge economy is so normative to planners from these regions that they feel it is not any more important than other economic issues.

Question Eight: Cross-Sectoral Cooperation

Cross-sectoral cooperation and partnerships are important elements in the success of the knowledge economy as they relate to creating and maintaining an enterprise culture within a community. Partnerships can include, but are not limited to public-private partnerships, non-profit and for-profit cross-institutional arrangements, etc. These partnerships and new-governance relationships should support entrepreneurship and innovation within a region; that is, they result in the realization of a local "enterprise culture (Corey and Wilson 2003)." Responding planners were asked to indicate their perception of the level of cross-sectoral cooperation within their jurisdiction as well as

the success of this cooperation. Responses were given on a scale from one to five with five indicating partnerships are "very cooperative" or "very successful," and a one indicating partnerships are "not very cooperative" or "not very successful." On average, responding planners indicated a cooperative level of partnerships of 3.36 on the scale from one to five and the success of these partnerships as 3.07 on the same scale. Figure 10 and 11 display the results by region for cooperation of partnerships and their success respectively.

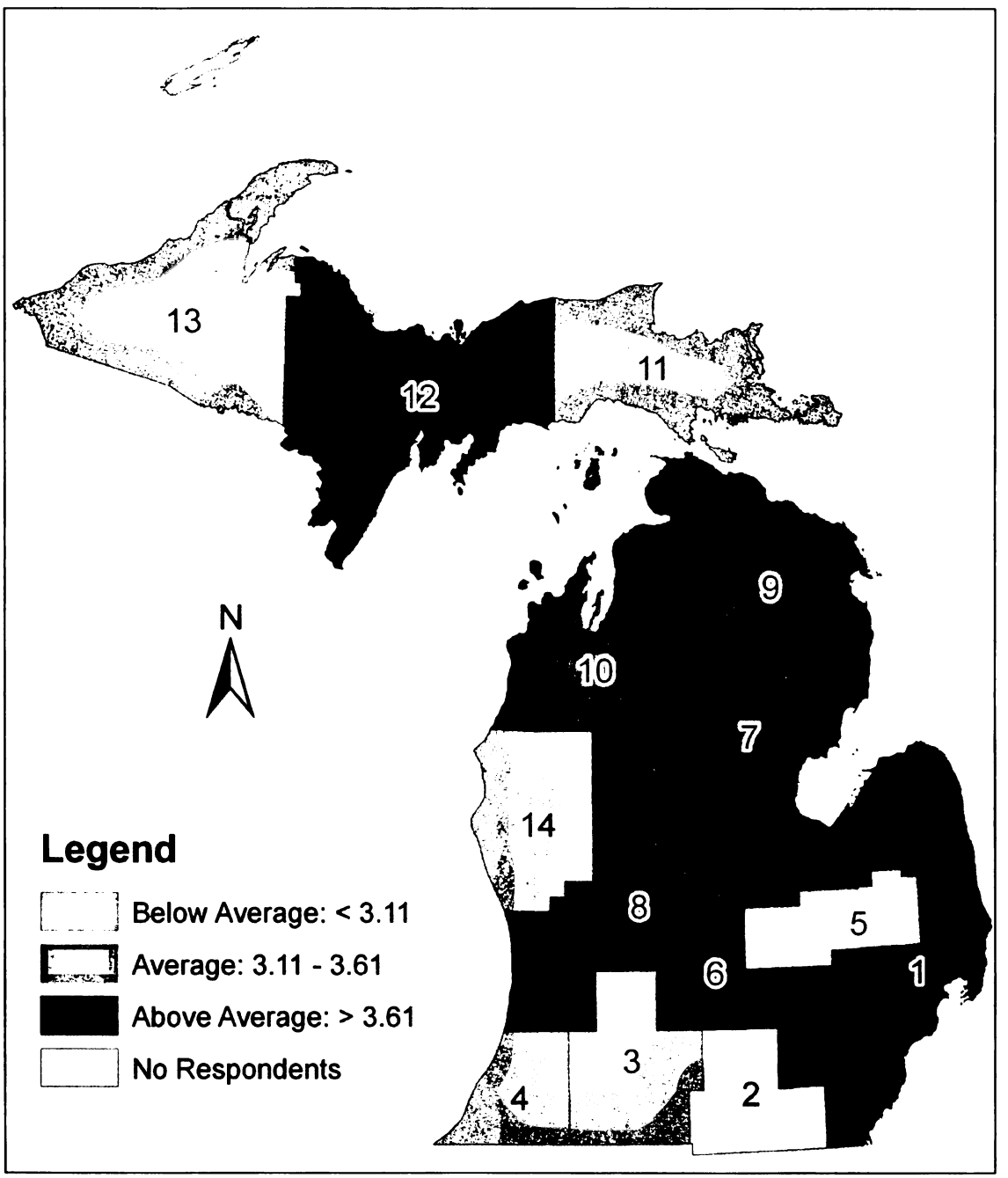


Figure 10. Cross-Sectoral Partnership Cooperation

Regions 1, 6, 8, and 12 indicated that cross-sectoral partnerships in the area are Above Average compared to other regions. Now that the cooperation in each region has been assessed, Figure 11 shows the perceived success of these partnerships as indicated by responding planners. It is expected that cooperative and successful partnerships are

associated with more intelligent ICT developed regions (Regions 1, 6, and 8); Figure 10 indicates this association.

Question Nine: Cross-Sectoral Success

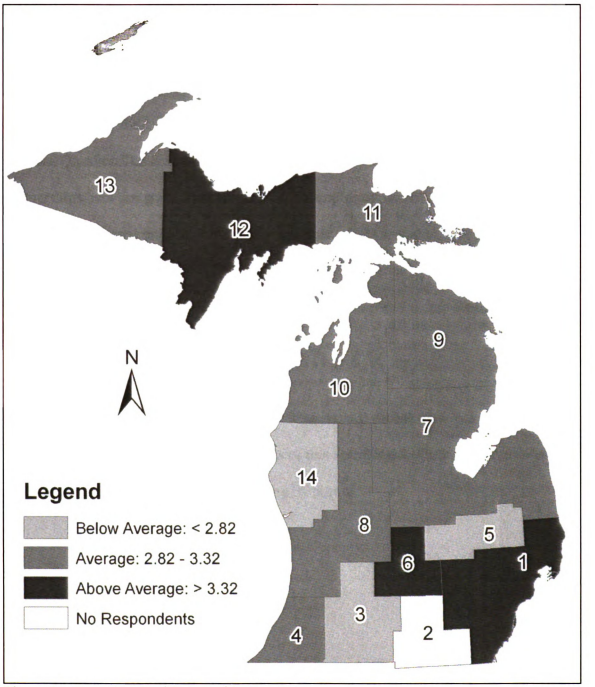



Figure 11. Cross-Sectoral Partnership Success

Overall, responding planners rated the success of cross-sectoral partnerships lower than the level of cooperation of these partnerships. This shows that while various types of agencies cooperate with one another, this cooperation is not always successful. Of the four regions indicating Above Average cooperation in their regions, Region 8 indicates that while cross-sectoral partnerships are cooperative, they are not as successful.

Question Ten: Inter-Governmental Cooperation

Similar to the question pertaining to cross-sectoral partnership cooperation and success, Question Ten asked planners to rate the level of cooperation and success of partnerships between governmental entities. Examples of partnerships of this nature could include formal information sharing agreements between neighboring municipalities or an informal friendly and cooperative environment for the mutual success of all municipalities involved. Planners were asked to rate cooperation and success on a scale from one to five with five indicating inter-governmental partnerships are "very cooperative" or "very successful" and a one indicating that the same partnerships are "not very cooperative" or "not very successful." The average cooperation rating for all respondents is 3.25 and the average success of these partnerships was rated similarly at 3.26. Figure 12 gives the cooperation rating by region.

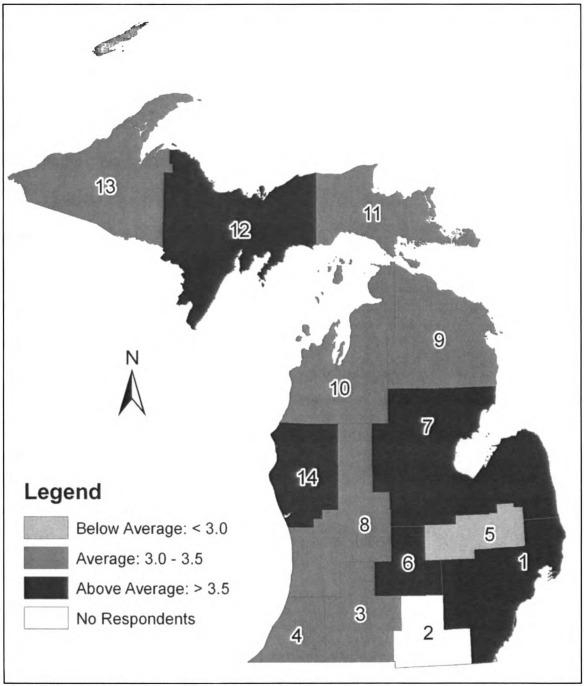



Figure 12. Cooperation among Government Entities

Region 5 indicated that government entities are "not very cooperative" in the region and also rated cross-sectoral cooperation Below Average. This is striking as Region 5 is surrounded by Regions 1, 6, and 7 which indicated an Above Average success of inter-governmental partnerships. The low rating of inter-governmental

cooperation in Region 5 could be due to the necessary aggregation of results at the regional scale. Region 5 includes the City of Flint and its surrounding metro area (an urban area characterized by economic disparity). However, the majority of Region 5 is very rural agricultural land. This stark contrast of geographies within a single region could be the cause for such a low rating of cooperation.

Regions tend to rate cooperation among government entities higher than the cooperation of cross-sectoral partnerships. Examples of partnerships of this nature include a relationship between non-profit organizations and the municipality in which they serve or agreements between non-governmental entities and private-sector companies for the betterment of the entire community. This indicates public or governmental entities are more willing to successfully cooperate with planners on issues of importance to the region. Figure 13 indicates the rating of success among government entities for each region.

Question Eleven: Inter-Governmental Success

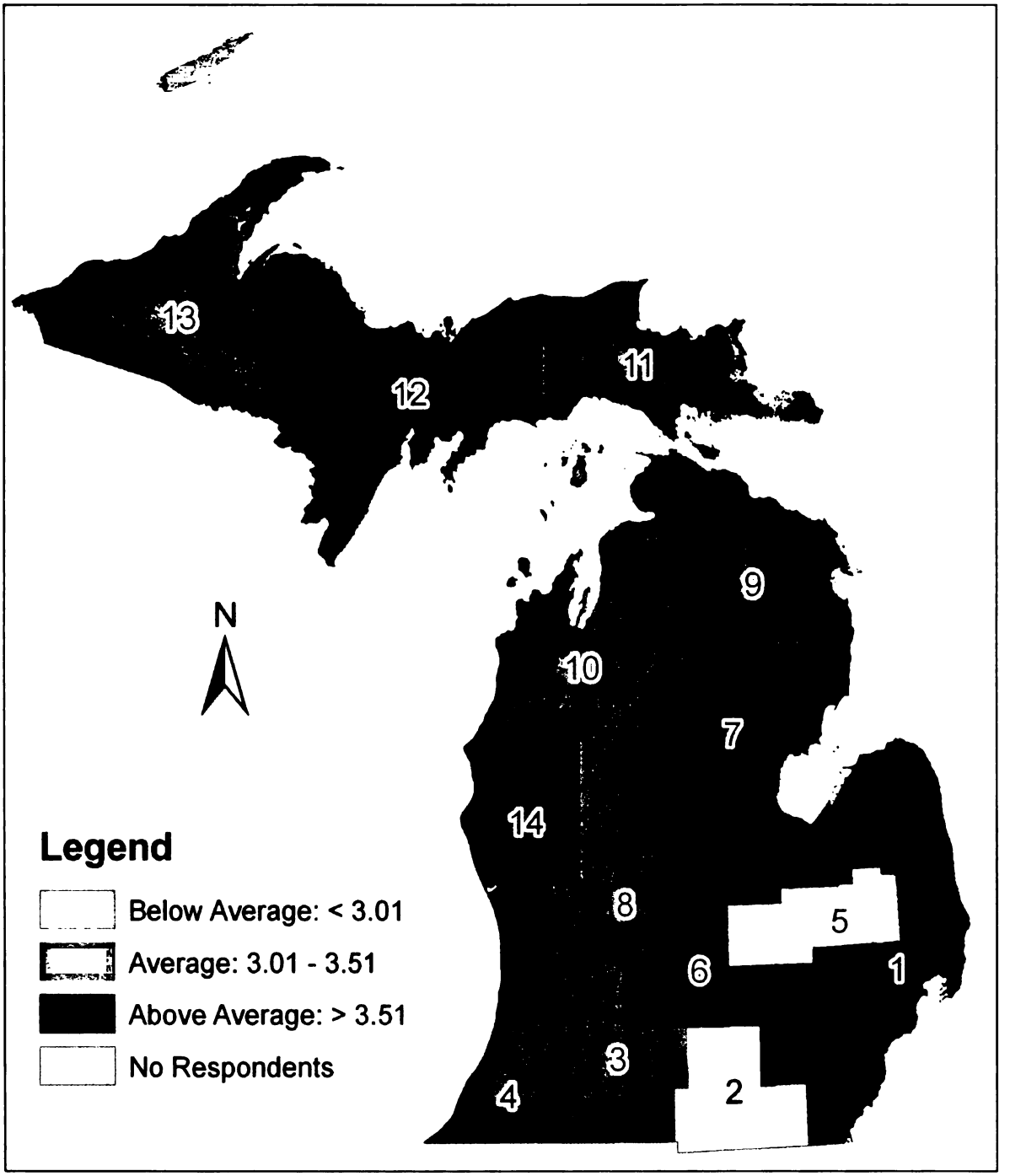



Figure 13. Success of Partnerships among Government Entities

Unlike the loose connection between cross-sectoral partnership cooperation and success, the rating of inter-governmental partnership success has the same regional distribution as intergovernmental partnership cooperation (see Figure 12). This implies

inter-governmental partnerships are more stable than cross-sectoral partnerships. Region 5 remains as the only region rating the success of these partnerships as "not very successful."

Question Twelve: Economically Distressed Communities

Equity among communities is an important dimension for planning in the context of the knowledge economy. The United States Economic Development Administration defines economically distressed communities as "those that experience substantial barriers that inhibit the growth of their local economies and limit their ability to compete effectively in regional, national, and global markets (USEDA)." Planners were asked to rate the level to which they apply principles of ICT and knowledge economy development to economically distressed communities in their jurisdiction. Responses were indicated on a scale from one to five with five indicating a high level of application of ICT and knowledge economy principles to economically distressed communities and a one indicating a low level of application. The average level of application for all respondents is 2.9 on the scale from one to five. Figure 14 displays the level of application for the fourteen regions.

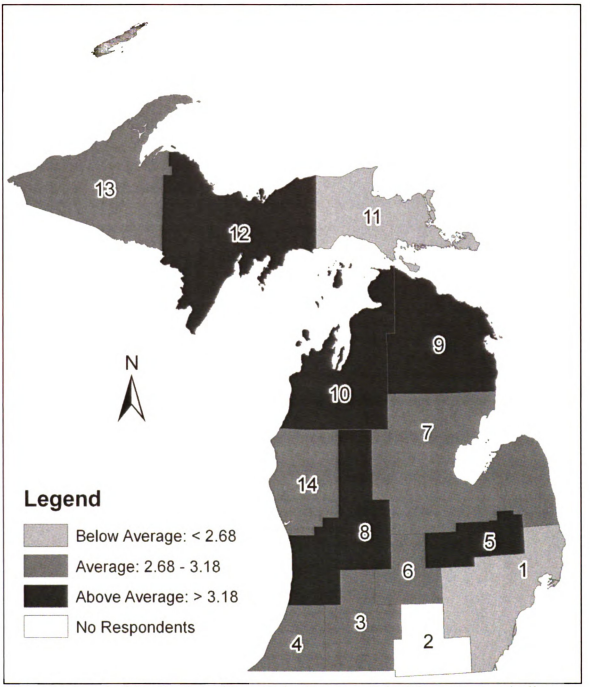



Figure 14. Level of Application of Knowledge Economy Principles to Economically Distressed Communities

The majority of regions indicated that they apply the principles of ICT and the knowledge economy to economically distressed communities in the region less often (i.e. Below Average and Average) in their daily practice. Regions 5, 8, 9, 10, and 12 indicate

higher levels of application of these principles to economically distressed communities. Region 1 is interesting in that in includes the metro Detroit area. The City of Detroit, another urban center plagued by economic disparity, is a sharp contrast to the typically wealthy suburbs extending from the city to the west.

### *4.3 Regional Comparison*

Table 13. Regional Comparison

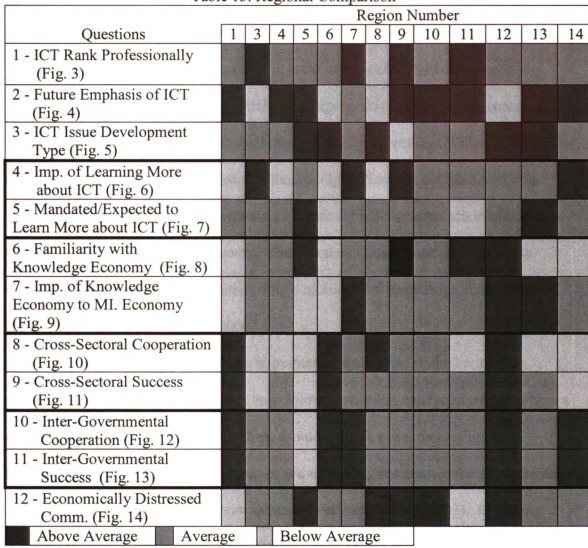



Table 13 displays the responses for each of the twelve questions asked in the survey and whether each region was below, at, or above the average response for each question. From this table one may identify those regions that are consistently above, below, or at the average among other regions. The table displays eight questions which are grouped into four pairs (Questions 4 & 5, 6 & 7, 8 & 9, and 10 & 11). The darkened line around each pair indicates that these questions should be examined together as they are related (i.e. cross-sectoral cooperation and cross-sectoral success). It is noted that no

survey respondents are located in Region 2; thusly, Region 2 has not been included in Table 13.

In 2003, Corey and Wilson developed five lessons targeting planning practice which are fundamental to planning in the context of the global knowledge economy. These lessons include; (1) human capital (2) enterprise culture (3) mindset change (4) new governance and (5) community and regional equity (Corey and Wilson 2003). Four of these lessons are directly addressed in the Michigan Planners and the Knowledge Economy Survey. These lessons represent a relatively holistic approach to planning in the context of the knowledge economy. These practice lessons and other local and regional planning practices within the context of the global knowledge economy are elaborated in Corey and Wilson, 2006.

Cross-sectoral partnerships are important to the success of the knowledge economy as they relate to the creation and maintenance of an enterprise culture within a community or region. These partnerships should support entrepreneurship and innovation within a region contributing to, and ultimately resulting in the strengthening and/or realization of a local enterprise culture (Corey and Wilson 2003). By asking planners to rate the level of cooperation and success among cross-sectoral partnerships within the region, an idea of the level of the enterprise culture in the region is established.

Because Michigan is a state with an economy traditionally rooted in the automotive industry (a resource intensive industry sector), it is important for planners to change their mindset in relation to economic development; moving from the establishment of traditional type industries to those which are knowledge-based. By asking planners to forecast the importance of the knowledge economy to the future of

Michigan's economy, the level of mindset change regarding the knowledge economy is established.

Inter-governmental cooperation is important to the knowledge economy as it represents new relational governance practices within a region. Michigan is a home rule state; therefore, Michigan municipalities have traditionally functioned autonomously and have not fostered or established strong inter-governmental or regional partnerships. Asking planners to rate the level of cooperation and success among inter-governmental partnerships within the region, a perceived level of new governance practices can be established.

In order for a region to compete in the global knowledge economy, a perceived level of community and regional equity must be established. Economically distressed communities are defined as those that experience substantial barriers (i.e. broadband access) that inhibit the growth of their local economies and limit their ability to compete effectively in regional, national, and global markets (USEDA). By asking planners to rate the extent to which they apply the principles of the knowledge economy and ICT development to economically distressed communities within their jurisdiction, a perceived level of regional equity engagement can be established.

The following sections include analyses for each region individually. Each region also has been categorized into one of the following three groups according to its responding planners' level of responsiveness to the knowledge economy (including the four of five planning practice lessons (i.e. enterprise culture, mindset change, new governance, and community and regional equity) described previously) and ICT; (1) Responsive (2) Somewhat Responsive or (3) Not Responsive. In order to determine

responsiveness, the numbers of Above Average, Average, and Below Average responses for each question were tabulated for each region. A region is considered to be Responsive if the number of Above Average and Average responses is greater than the number of Average and Below Average responses. A region is Somewhat Responsive if there are an equal number of responses Above Average and Below Average. Finally, a region is considered relatively Not Responsive if the number of Average and Below Average responses is greater than the number of Above Average and Average responses.

Again, because this "Michigan Planners and the Knowledge Economy Survey" was a completely voluntary method of data collection, results may not reflect the actual ICT and knowledge economy planning environments in each region.

Region 1: Southeast Michigan Council of Governments

Above Average Responses: 5
Average Responses: 3
Below Average Responses: 4
Responsive

From Table 13, the most noticeable responses from Region 1 are in regards to cross-sectoral and inter-governmental partnerships. Region 1 planners rated cross-sectoral partnership cooperation and success as well as inter-governmental partnership cooperation and success Above Average. This indicates strong ties among institutions of all types (i.e. public- and private-sector, non-governmental, non-profit, etc.). Region 1 contains the Detroit metropolitan area; an area with an economy traditionally based in the automotive industry and related manufacturing. With the decline of manufacturing and other resource-intensive industries (i.e. those with inputs relying primarily on natural resources), it is interesting to note that planners from this region indicated a Below Average response to the level of importance the knowledge economy will have on

Michigan's economy in the future. Also noted is a Below Average familiarity with the knowledge economy. The automotive industry is not only resource-intensive; automotive research and development as well as design are two sectors of this industry founded upon the knowledge economy. Region 1 contains a large number of these particular types of establishments because of the presence of the automotive industry. Because of this large presence of research and development as well as design, the gap between Region 1 planner familiarity with the knowledge economy and its importance to the future of Michigan's economy is notable.

At a professional level, planners in Region 1 ranked ICT (a major underpinning of the knowledge economy) at an Average level of importance among other regions. Region 1 planners also indicated that ICT will and should have more emphasis in the future, however, they do not feel it is important to know and/or learn more about ICT as it relates to the function of their organization and are not mandated to do so.

Region 1 planners are considered to be Responsive to the knowledge economy and ICT. The strongest portion of this responsiveness is grounded in the cooperation and success of cross-sectoral and inter-governmental partnerships, while the weakest portion is in the planners' Below Average familiarity with the knowledge economy and their belief that it will not be as important to Michigan's economy as indicated by other regions.

Region 3: South-Central Michigan Planning Council

Above Average Responses: 2
Average Responses: 7
Below Average Responses: 3
Not Responsive

Region 3 is considered to be Not Responsive because the number of Average and Below Average responses is slightly greater than the number of Above Average and Average responses. The most noticeable responses from this region are the Below Average indication of cross-sectoral partnership cooperation and success indicated by responding planners. This indicates that planners in this region do not perceive a culture of entrepreneurship between different types of agencies. Interestingly, planners in Region 3 feel that ICT has an Above Average importance and that it is important to know and/or learn more about ICT as it relates to the function of their organization, but feel that it will not and should not have more emphasis in the future. Region 3 planners indicated an Average familiarity with the knowledge economy and believe it will have Average importance to the future of Michigan's economy.

Region 4: Southwestern Michigan Commission

Above Average Responses: 1
Average Responses: 9
Below Average Responses: 2
Not Responsive

The majority of responses from planners in Region 4 were Average. As stated previously, Questions 8 & 9 should be examined simultaneously as cross-sectoral partnership cooperation and success are related. Of the thirteen regions with planners responding to the survey, only four regions indicated different responses for the level of cooperation and the level of success among cross-sectoral partnerships. Region 4 indicates a Below Average level of cooperation between these partnerships and an Average level of success. This indicates that while cross-sectoral partnerships in Region 4 are not necessarily cooperative, the cooperation that exists is successful.

Planners responding from Region 4 indicate that it is of Below Average importance to know and/or learn more about ICT as it relates to the function of their organization and are expected to know and/or learn more. Also, while planners indicate an Average level of importance for ICT among other planning issues, they also feel that ICT will and should have more emphasis in the future. This indicates that while ICT development is not as important to planners in Region 4, they feel it will become more important in the future as development occurs.

Region 5: Genesse-Livingston-Shiawasee Region V Planning and Development Commission

Above Average Responses: 5
Average Responses: 2
Below Average Responses: 5
Somewhat Responsive

Region 5 is considered to be Somewhat Responsive to the knowledge economy and ICT because planners in the region indicate equal numbers of Above Average and Below Average responses. An especially noticeable pattern of response from planners in Region 5 is the Below Average responses given for cross-sectoral and inter-governmental partnership cooperation and success. This indicates that neither cross-sectoral nor inter-governmental partnerships are perceived as cooperative or successful in Region 5.

Region 5 planners indicate an Average level of importance of ICT among other planning issues. However, they also indicate that ICT will and should have more emphasis in the future and indicate two intelligent type ICT development issues (i.e. e-Government and GIS and Related Technology) as being most important. This indicates that Region 5 is beyond the stages of digital ICT infrastructure development and is increasingly concerned with more advanced use and application of this infrastructure.

Planners in Region 5 also indicate that they are mandated and therefore expected to know and/or learn more about ICT as it relates to the function of the organization for which they represent.

Planners also indicate they have an Above Average familiarity with the knowledge economy but do not feel the knowledge economy will be as important to the future of Michigan's economy as was indicated by ten other regions. Region 5 planners indicate an Above Average application of knowledge economy principles to economically distressed communities within their jurisdiction. Region 5 has progressed Above the Average for all Michigan regions in regards to ICT yet falls Below Average in the area of cooperation and success among various partnerships.

Region 6: Tri-County Regional Planning Commission

Above Average Responses: 5
Average Responses: 2
Below Average Responses: 5
Somewhat Responsive

The same as Region 5, Region 6 indicates an equal number of Above Average and Below Average responses. Just as with Region 1, the most noticeable response pattern for Region 6 is the Above Average indication for cross-sectoral and intergovernmental partnership cooperation and success. This indicates a strong connection between institutions of all types within the region. Also noticeable is a cluster of Below Average responses for Questions 4, 5, 6, and 7; planners in Region 6 do not feel it is important to know and/or learn more about ICT as it relates to the function of their organization and are not expected nor mandated to do so. Region 6 planners also feel that ICT will not and should not have more emphasis in the future and indicate two intelligent type ICT development issues (i.e. GIS and Related Technology and

Technology Related Economic Development) as most important for the region. These responses indicate that ICT is not a high priority for the responding planners and the region has moved beyond infrastructure development and is focusing more on use and application of the infrastructure.

Planners also indicate a Below Average level of familiarity with the knowledge economy and do not feel the knowledge economy will be as important to Michigan's economy as do other regions. This is interesting in that Lansing (in a somewhat analogous fashion as Detroit (i.e. with a heavy presence of automotive related industries) only on a smaller scale) has an economy traditionally based on manufacturing type industries. Unlike Detroit, however, Lansing has more manufacturing establishments related to the automotive industry than research and development or design establishments.

In contrast to Region 5, Region 6 is Above Average in the area of partnership cooperation and success yet is Below Average in the area of ICT development and knowledge.

Region 7: East Central Michigan Planning and Development Regional Commission

Above Average Responses: 5
Average Responses: 7
Below Average Responses: 0
Responsive

Responding planners from Region 7 are Responsive to the knowledge economy and ICT as they indicate no Below Average responses to any of the questions asked. Region 7 indicates Above Average cooperation and success of inter-governmental partnerships and Average cooperation and success of cross-sectoral partnerships. This indicates that many different institutions work well together within the region. While

responding planners indicate an Average level of familiarity with the knowledge economy, they foresee that the knowledge economy will be very important to the future of Michigan's economy.

Region 7 planners rank ICT with an Above Average importance among other planning issues and feel that ICT should have more emphasis in the future. Planners also note one digital type ICT development issue and one intelligent type ICT development issue as being most important among other ICT issues. This indicates that while the application and use of ICT infrastructure is important, there is still some importance on the deployment of infrastructure throughout the region. Region 7 planners also indicate an Above Average level of importance for knowing and/or learning more about ICT as it relates to the function of their organization and are expected but not mandated to know and/or learn more. While there is no formal policy for learning more about ICT, planners feel it is important to do so.

Region 8: West Michigan Regional Planning Commission

Above Average Responses: 3
Average Responses: 6
Below Average Responses: 3
Somewhat Responsive

Region 8 indicates an equal number of Above Average and Below Average responses. Of the other thirteen regions with planners responding to the survey, Region 8 is the only region that ranks ICT Below Average among other planning issues. Planners also feel that ICT will not and should not have more emphasis in the future. In contrast, planners in Region 8 indicate two intelligent type ICT development issues (i.e. e-Government and GIS and Related Technology) as being most important and also feel there is a Below Average importance to know and/or learn more about ICT as it relates to

the function of the organization they represent but are expected to do so. This indicates that Region 8 has moved past ICT infrastructure development and on to the application and use of infrastructure. Planners, therefore, feel that ICT is not as important as it once was because the focus is no longer on infrastructure.

Region 8 planners indicate an Average familiarity with the knowledge economy and also feel that it will be important to the future of Michigan's economy. Planners also indicate that they attempt to apply principles of the knowledge economy and ICT when working with economically distressed communities.

With the exception of cross-sectoral partnership cooperation being Above Average, all other questions pertaining to partnerships of any kind in the region are Average. Region 8 displays Below Average responses for questions pertaining to ICT and Average to Above Average responses for questions dealing with the knowledge economy and partnership cooperation and success.

Robert Huggins, noted knowledge economy economist, annually publishes the World Knowledge Competitiveness Index. The 2005 Index gathered data for various knowledge economy indicators from 125 city-regions around the world. Of these 125 worldwide city-regions, Grand Rapids, MI (located within Region 8) was ranked sixth in the world for knowledge competitiveness; in 2004, Grand Rapids was ranked third (Huggins 2005). It is notable that while Grand Rapids ranks highly among worldwide city-regions for knowledge competitiveness, Region 8 planners are only Somewhat Responsive to the knowledge economy.

Region 9: Northeast Michigan Council of Governments

Above Average Responses: 5
Average Responses: 6

Below Average Responses: 1
Responsive

Region 9 is unique in that it is the only region indicating two digital type ICT development issues as most important among other ICT issues. This indicates planners in this region feel the area is not as connected to digital infrastructure as other parts of the state. Responding planners also indicate an Above Average importance of ICT among other planning issues as well as a belief that ICT will have and should have more emphasis in the future. Region 9 planners also indicate an Above Average importance to know and/or learn more about ICT as it relates to the function of their organization. It can be asserted that planners in Region 9 realize the need to continue to deploy and develop digital ICT infrastructure before prioritizing the development and application of advanced uses of ICT. Planners recognize the importance of ICT and are proactive in knowing and learning more about it.

Region 9 planners also responded by indicating an Above Average level of familiarity with the knowledge economy as well as an Above Average attempt to apply the principles of the knowledge economy and ICT to economically distressed communities in the region. Cooperation and success among cross-sectoral and inter-governmental partnerships were indicated at an Average level. Region 9 planners recognize the need to advance digital infrastructure and give importance to ICT accordingly.

Region 10: Northwest Michigan Council of Governments

Above Average Responses: 2
Average Responses: 10
Below Average Responses: 0
Responsive

The majority of responses indicated by planners in Region 10 fall close to the Average of all responding planners to the survey. This could be due in part to Region 10 being a mix of both urban and rural municipalities, and therefore representative of the state as a whole. The two questions for which Region 10 indicated Above Average responses were for the future emphasis of ICT and the application of knowledge economy and ICT principles to economically distressed communities. This indicates that, for the most part, Region 10 planners feel comfortable with the state of ICT and knowledge economy development within the area (i.e. have incorporated such principles into practice and thus the new-economy practices have become normative).

Region 11: Eastern Upper Peninsula Regional Planning and Development Commission

Above Average Responses: 3
Average Responses: 6
Below Average Responses: 3
Somewhat Responsive

Just as indicated in Region 9, Region 11 planners indicate an Above Average importance of ICT. Responding planners also indicate that ICT will and should have more emphasis in the future. One digital type ICT development issue and one intelligent type ICT development issue also were indicated as being the top two most important ICT issues to planners in the region. Planners feel an Average level of importance to know and/or learn more about ICT but are not mandated nor expected to do so by the organizations they represent.

Planners responding from Region 11 indicate an Above Average familiarity with the knowledge economy but believe the knowledge economy will have an Average importance to the future of Michigan's economy. Also noted is the Below Average

response in regard to the application of knowledge economy and ICT principles to economically distressed communities within the region.

A disparity exists between the cooperation level of cross-sectoral partnerships and the success of these partnerships. Cooperation was rated Below Average while the success of the partnerships was rated as Average. Similar to Region 4, this indicates that while partnerships are not as pervasive as other regions, they are successful.

Region 12: Central Upper Peninsula Planning and Development Regional Commission

Above Average Responses: 8
Average Responses: 3
Below Average Responses: 1
Responsive

Region 12 stands out among the other regions as having the highest number of Above Average responses. In regards to the first three questions asked (i.e. ICT rank, future emphasis of ICT, and ICT issue development type), Region 12 planners responded in the same manner as Region 6. Planners ranked ICT as Average among other planning issues and stated that ICT will not and should not have more emphasis in the future. However, two intelligent type ICT development issues were given as the two most important issues to planners in the region. Planners also feel an Average importance to know and/or learn more about ICT as it relates to the function of the organization they represent but are not expected to do so. This indicates that, according to the regions' planners, Region 12 has moved past the deployment of ICT infrastructure and is concentrating on the development of advanced ICT applications and uses of the existing infrastructure.

Planners responding from Region 12 indicate an Above Average familiarity with the knowledge economy as well as recognizing that the knowledge economy will be very

important to the future of Michigan's economy. Also rated Above Average are cooperation and success among both cross-sectoral and inter-governmental partnerships. The application of knowledge economy and ICT principles to economically distressed communities is also Above Average. Because of the traditionally rural character of Michigan's Upper Peninsula, it could be expected that all regions of the Upper Peninsula would attempt to apply the principles of the knowledge economy and ICT to economically distressed communities. By having an environment with cooperative and successful partnerships among agencies as well as having planners with a greater familiarity with the knowledge economy than other regions, Region 12 planners are responsive to the knowledge economy and ICT.

Region 13: Western Upper Peninsula Planning and Development Regional Commission

Above Average Responses: 4
Average Responses: 6
Below Average Responses: 2
Responsive

Region 13 exhibits the same responses as Region 5 in regards to Questions 1, 2, and 3. Planners in Region 13 indicate an Average importance of ICT among other planning issues but feel that ICT will and should have more emphasis in the future. Also indicated are two intelligent type ICT development issues as the two most important ICT issues to planners. While Region 13 planners indicate an Average response to knowing and/or learning more about ICT, they indicate that the organizations they represent expect and mandate them to know and/or learn more about ICT as it relates to the function of their organization. This is also shown in Region 5.

Region 13 planners indicate a Below Average level of familiarity with the knowledge economy but feel that the knowledge economy will have an Above Average

importance to the future of Michigan's economy. Inter-governmental partnership cooperation and success were rated at an Average level while cross-sectoral partnership cooperation was rated Below Average and cross-sectoral partnership success was rated Average. This indicates that while partnerships between different institution types are not always cooperative, they can be successful and for the future more effort needs to be put into the public-private linkage.

Region 14: West Michigan Shoreline Regional Development Commission

Above Average Responses: 4
Average Responses: 5
Below Average Responses: 3
Responsive

Planners responding from Region 14 indicate an Average importance of ICT among other planning issues but feel ICT will and should have more emphasis in the future (i.e. indicating they are a digital development laggard). Also noted are one digital type ICT development issue and one intelligent type ICT development issue as the two most important ICT issues facing the region according to planners. This indicates that ICT should be more important and the region is transitioning from the deployment of ICT infrastructure to the advanced use of this infrastructure (i.e. both a short-term and longer-term mindset).

Region 14 planners indicated a Below Average level of familiarity with the knowledge economy; one of four regions responding as such. Also noted is an Average opinion that the knowledge economy will be important to the future of Michigan's economy.

Region 14 stands out among other regions because of the discrepancy between the indicated levels of cooperation and success for cross-sectoral and inter-governmental partnerships. Planners responded by stating Below Average levels of cooperation and success among cross-sectoral partnerships within the region, but indicated Above Average levels of cooperation and success among inter-governmental partnerships. This signifies a cooperative environment among municipal governments in the area and a less cooperate environment among other types of institutions (i.e. non-profit, non-governmental, private-sector, etc.). Region 14 planners are more responsive to ICT and

inter-governmental cooperation than to knowledge economy familiarity and cross-sectoral partnerships.

Geographic Regional Responsiveness

After examining the responsiveness of planners in each region to the knowledge economy and ICT, a map displaying each region's total responsiveness was created. Figure 15 displays the overall responsiveness of each planning and development region in Michigan.

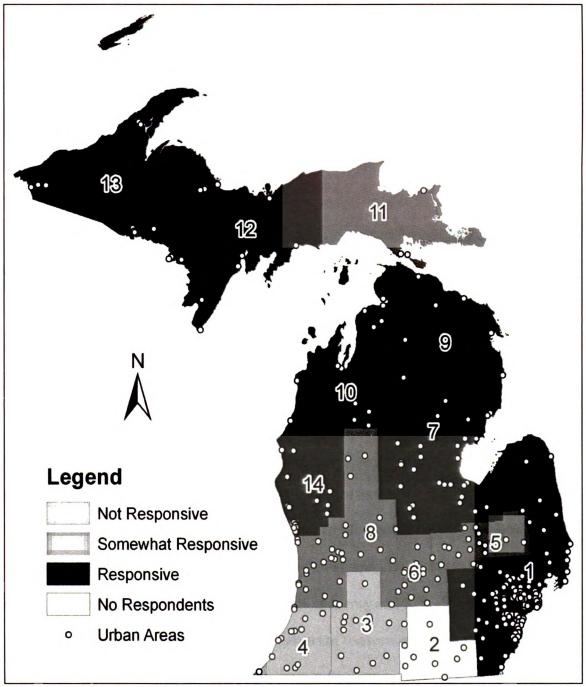


Figure 15. 2005 Regional Responsiveness

Clear geographic patterns can be seen related to regional location and responsiveness. Regions 3 and 4, located in the southwest corner of the state, are the only two regions categorized as Not Responsive because of the high number of Below Average and Average responses indicated by participating planners. North of Regions 3

and 4, a horizontal band consisting of Regions 5, 6, and 8 are classified as having planners who are Somewhat Responsive to the knowledge economy and ICT. Region 11, located in the eastern portion of Michigan's Upper Peninsula, also is categorized as Somewhat Responsive. Enveloping the Not Responsive and Somewhat Responsive areas of the state, planners responding from Regions 1, 7, 9, 10, 12, 13, and 14 are Responsive to the knowledge economy and ICT.

Also indicated on the map are urban areas designated by the State of Michigan. It could be expected that more Responsive regions would be those in which there is a higher population density. Region 1 planners, the region containing the Detroit metropolitan area, indicate they are Responsive to the knowledge economy and ICT. However, other populous areas such as Regions 5, 6, and 8 are only Somewhat Responsive. Moving north in the state's Lower Peninsula, urban areas become more sparse. However, planners representing Regions 7, 9, 10, and 14 are as Responsive, if not more Responsive, than those in more populated areas (i.e. Regions 1, 5, 6, and 8). Interestingly, Region 12 and 13 planners, located in Michigan's Upper Peninsula (a region unique in its natural beauty, sparse population, and distant from traditional urban settings), also are Responsive to the knowledge economy and ICT. Not only are geographic patterns discernable from the analysis of the results of the Michigan Planners and the Knowledge Economy Survey, but temporal patterns are also evident.

Temporal Regional Responsiveness

In 2001, a paper entitled "An Examination of Government-Led Broadband Infrastructure Initiatives in Michigan" was published by James C. Breuckman, a graduate student of Michigan State University's Urban and Regional Planning Program. The basis

for the research of this paper was an eReadiness survey conducted of Michigan's fourteen planning and development regions. The purpose of the Breuckman survey was to provide information pertaining to how ready Michigan's regions are to participate in the digital economy (Breuckman 2001, 2). The eReadiness survey categorized regions into various stages of readiness based on regional planners' responses to the survey.

The Michigan State University Community and Economic Development Program, in 2003, published an occasional paper that reported on a survey of the websites of Michigan counties and planning and development regions from an economic development perspective (Singh 2003, 1). Website development, for the purposes of economic development, is an example of an intelligent type ICT development issue founded on existing advanced ICT infrastructure. An economic development framework of eighteen questions was developed by Michigan State University professors Kenneth E. Corey and Mark I. Wilson and applied to county and regional websites (Singh 2003, 4). A grouping methodology then was established based on the framework. County and regional websites were placed into four categories based on their ranking in the methodology: (1) Leaders (2) Contenders (3) Followers or (4) Laggards (Singh 2003, 6).

Once both the eReadiness survey by Breuckman and the website analysis by Singh were completed, in 2003, the results were combined and a map was created indicating an overall responsiveness of each of Michigan's planning and development regions in the context of the digital economy (i.e. economic development websites and eReadiness). Figure 16 displays regional planner responsiveness in 2003 based on regional responses to the two aforementioned studies.

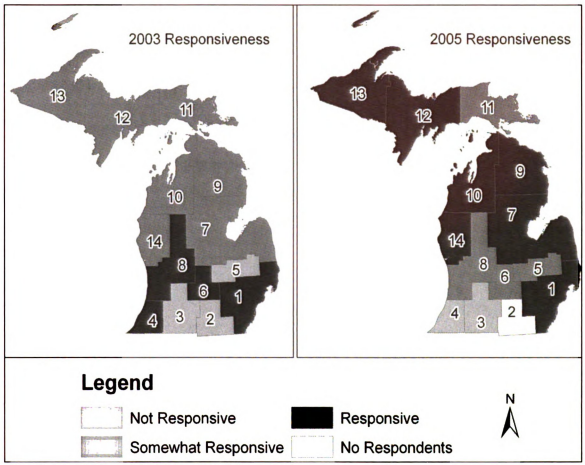


Figure 16. 2003 and 2005 Regional Responsiveness

Regions 1, 3, and 11 retained the same responsiveness level from 2003 to 2005 while Regions 4, 6, and 8 decreased in their responsiveness to the knowledge economy and ICT. The majority of Michigan's regions increased their responsiveness level including Regions 5, 7, 9, 10, 11, 12, 13, and 14. With the exception of Region 5, all other regions increasing their responsiveness went from being categorized as Somewhat Responsive in 2003 to Responsive in 2005 (Region 5 increased from Not Responsive in 2003 to Somewhat Responsive in 2005).

The same geographic patterns established in the regional responsiveness of 2005 (see Figure 15) are not evident in the responsiveness levels of 2003, but a similar pattern exists. In 2003 Regions 2 and 3, as well as 5, were Not Responsive. These regions are

located in the south-central portion of the state. Enveloping Regions 2 and 3, Regions 1, 4, 6, and 8 are the Responsive regions of 2003. This pattern is consistent with the location of more urban areas in Michigan as shown in Figure 15. Moving northward in the state, Regions 7, 9, 10, 11, 12, 13, and 14 (areas of more sparse population) are categorized as Somewhat Responsive. The spatial pattern between 2003 and 2005 Somewhat Responsive and Responsive regions is reversed. Generally, those regions which, in 2003, were Somewhat Responsive have put forth effort in becoming Responsive two years later in 2005.

Regions 6 and 8 are interesting in that both went from being Responsive in 2003 to being Somewhat Responsive in 2005. This could be due, in part, to planners in these regions recognizing that digital ICT infrastructure exists throughout the region and are now concentrating on the advanced use of this infrastructure thus the concepts of the knowledge economy and ICT have become normative to planners in these regions. In the 2005 survey, both regions indicate two intelligent type ICT development issues as the two most important ICT issues. This shows that planners in Region 6 and 8 were Responsive to the need for digital infrastructure deployment and now, in 2005, this goal has been accomplished and they are now beginning to move toward the intelligent ICT development of the regions.

The progress demonstrated by the majority of Michigan's planning and development regions is significant. As evidenced by the shift of Regions 7, 9, 10, 12, 13, and 14 from Somewhat Response in 2003 to Responsive in 2005 indicates that planners have recognized the need for advancement in the knowledge economy as well as in the development of ICT.

### *4.4 Private-Sector Survey Results*

Two sectors dominate the realm of urban and regional planning practice in Michigan; public-sector planners and private-sector planners. Of the 630 places in Michigan recognized by the United States Census Bureau, 60.7% of these places had a population less than 3,000 people in the year 2000 (US Census). Communities of this size typically do not have the resources necessary to independently conduct planning and zoning activities on a regular basis. As is often the case, these communities contract with private-sector consulting firms in order to meet planning needs. Therefore, private-sector planners have an important influence over planning activities in Michigan. In order to address this phenomenon, private-sector planners serving Michigan were included in the set of respondents for the Michigan Planners and the Knowledge Economy Survey.

Private-sector planners employed by private-sector planning consulting firms were chosen randomly from nineteen firms serving Michigan. Six responses were received from these firms by the end of July 2005. Private-sector planners received the same survey as public-sector planners. Table 14 examines the average response for the twelve questions examined in section 4.2.

Table 14. Comparison of Public- and Private-Sector Responses

| Question | Question Description | Average Responses: Public-Sector | Average Responses: Private-Sector |
|---|---|---|---|
| 1 | ICT Importance, Professionally | 4.15 | 3.8 |
| 2 | ICT Will Have Emphasis<br>ICT Should Have Emphasis | Same<br>More | More<br>More |
| 3 | 1st Ranked ICT Issue Type<br>2nd Ranked ICT Issue Type | Digital<br>Intelligent | Intelligent<br>Intelligent |
| 4 | Importance of Knowing and/or Learning about ICT | 3.93 | 3.5 |
| 5 | Mandated to Know and/or Learn<br>Expected to Know and/or Learn | No<br>Yes | No<br>Yes |
| 6 | Familiarity with Knowledge Economy | 2.65 | 2.66 |
| 7 | Importance of Knowledge Economy to the State Economy | 4.44 | 4.33 |
| 8 | Cross-Sectoral Partnership Cooperation | 3.37 | 3.5 |
| 9 | Cross-Sectoral Partnership Success | 3.13 | 3.4 |
| 10 | Inter-Governmental Cooperation | 3.3 | 2.7 |
| 11 | Inter-Governmental Success | 3.21 | 3.2 |
| 12 | Economically Distressed Communities | 3.05 | 2 |

It can be seen in Table 14 that private-sector planners rate the importance of ICT lower than public-sector planners. However, private-sector planners feel ICT will and should have more emphasis in the future. Also, private-sector planners' top two ICT issues are both of the intelligent development type while public-sector planners feel, in part, that digital ICT development is still important. Public-sector planners believe that it is more important to know and/or learn more about ICT as it relates to the function of their organization than private-sector planners. Because the work of private-sector planners is influenced by market forces, making them stay abreast of current planning issues, topics, and techniques, it is interesting to note that private-sector planning agencies, in general, do not mandate their planning staff to know and/or learn more about ICT as it relates to the function of their organization. This is similar to the response indicated by public-sector planners.

Both public- and private-sector planners have relatively the same level of familiarity with the knowledge economy and believe it will be important to the future of Michigan's economy. Private-sector planners feel the cooperation and success among cross-sectoral partnerships is higher than public-sector planners. The application of knowledge economy principles to economically distressed communities is significantly lower among private-sector planners than among public-sector planners. This could be due in part to the fact that private-sector planners are hired by specific communities to perform specific tasks. This gives the private consulting firm less freedom to apply knowledge economy and ICT principles to a wide range of community types, including those which are economically distressed.

Private-sector planners are no more responsive to the knowledge economy and ICT than public-sector planners. This suggests that both private- and public-sector planners can learn from one another in the context of the knowledge economy.

## Chapter 5.0
## Recommendations and Conclusions

### *5.1 Spatial and Temporal Patterns*

As shown in previous sections, there are clear spatial and temporal patterns existing in relation to urban and regional planners and their opinions and perspectives of the knowledge economy and ICT. Represented in the 2005 survey of Michigan planners, Michigan's southwest clearly is in need of policy changes in relation to planning in the context of the knowledge economy and ICT (i.e. the development and enhancement of cross-sectoral as well as inter-governmental partnerships, the application of knowledge economy and ICT principles to economically distressed communities, etc). Regions 3 and 4 were consistently Below Average in regards to the survey questions asked. Also, it is alarming that Region 4 went from being Responsive in 2003 to being Not Responsive in 2005. Regions 3 and 4 also rated cross-sectoral partnership cooperation and success Below Average. These regions should examine policy related to partnerships of this type and encourage the development of a more cooperative environment between multiple agency types.

Regions 1, 5, 6, and 8 are the regions of Michigan containing the highest concentration of population in the state. With the exception of Region 1, all of these regions were categorized as Somewhat Responsive. Interestingly, these regions were ranked as Responsive in 2003, showing a decrease in responsiveness level over a two year period. Regions 1 and 6 indicate Above Average levels for cooperation and success among both cross-sectoral and inter-governmental partnerships while Regions 5 and 8 rated these same aspects as Below Average or Average respectively. Regions 5 and 8

should take note of policies existing in Regions 1 and 6 aimed at inter-institutional and inter-organizational partnerships.

The other regions of the state (i.e. Regions 7, 9, 10, 11, 12, 13, and 14) indicate Responsive planners in the context of the knowledge economy and ICT. While these areas of the state are not as populated as the previously discussed regions, responding planners are more responsive to the knowledge economy. These regions also show an improvement in responsiveness from 2003 to 2005 by increasing from Somewhat Responsive to Responsive.

Because of the strong spatial and temporal patterns existing among planners and their opinions and perspectives of the knowledge economy and ICT, best practices can be learned from regions excelling in particular areas (i.e. cross-sectoral or inter-governmental cooperation, knowledge economy familiarity, ICT development issues, professional development in the knowledge economy and ICT, digital and intelligent development, continuing education, etc.) and applied to those regions which are struggling.

### *5.2 Recommendations*

Evidenced by the varied distribution of planner responsiveness to the knowledge economy and ICT, the most influential recommendation derived from this research calls for a change in the current regulatory framework guiding the work of Michigan's planners to formally mandate planners to incorporate both digital and intelligent development activities into planning practice (i.e. more authority given to regional planning entities, stricter, more comprehensive, and current mandates from state legislation, etc.). This is a drastic mindset change that needs to take place at a broad

state-wide level. By mandating the application of knowledge economy and ICT principles into the work of Michigan's planners, Michigan's future economy may begin to be changed from one based principally on traditional manufacturing industries to one that also is based on knowledge, technology, and creativity; thus, a more diverse and competitive set of regional economies should result and spillover from currently more knowledge economy and ICT advanced regions (i.e. Regions 1, 7, 9, 10, 12, 13, and 14) could influence the practices of other regions.

However, unlike California and Oregon (states in which planning is driven by state government), Michigan legislation enables local municipalities to plan instead of mandating planning activities or agendas. A more attainable, and realistic, recommendation derived from this research is to provide incentives to municipal planners and local communities to create and adopt plans which include and promote elements of ICT and knowledge economy development. Connecting state funding to projects and developments associated with or based on ICT and knowledge economy principles is one example of a state-level incentive for developing the knowledge economy via the practice of planning. Michigan Governor Jennifer Granholm's Cool Cities Initiative is an example of just such an incentive. One of Michigan's knowledge economy related problems is the loss of young college graduates to more vibrant and attractive areas of the country. Recent college graduates typically are employable in knowledge economy related industries. By losing large numbers of graduates each year, Michigan is losing the opportunity to capitalize on the potential for knowledge economy development from these individuals. Therefore, the idea behind the Cool Cities Initiative is to create vibrant Michigan cities in order to attract and retain young college graduates and professionals.

Communities are encouraged to develop projects that create more lively, fun, and exciting places to live and work within the state. Communities then can submit plans to the Initiative and those projects chosen are awarded $100,000 to begin work. The retention of young college graduates relates directly to the development of human capital as proposed by Corey and Wilson in their five fundamental planning practice lessons for planning in the context of the knowledge economy. While the Cool Cities Initiative is only one analogous illustration of a state-led incentive for the promotion of the knowledge economy, it is an example that can be followed and applied to other elements of the new economy as well.

As indicated by Corey and Wilson's five fundamental planning practice lessons (human capital, enterprise culture, mindset change, new governance, and community and regional equity), these five elements need to become a priority of Michigan planners in their knowledge economy practice (Corey and Wilson 2006, 178-179). Human capital development can be fostered by giving more and sustained emphasis to educational institutions in order to develop a more educated, skilled, creative, and well informed population. An enterprise culture can be developed by providing a facilitating, innovative, and entrepreneurial environment for successful and cooperative cross-sectoral partnerships. As discussed previously, a mindset change among planners at multiple levels (i.e. state government mandating planners to plan in the context of digital and intelligent development and more authoritative regional planning entities) needs to take place on a large scale. Also, Michigan planners need to recognize and accept that the economy has been and is shifting from industries based in resource-intensive production to those based on knowledge production and the commercialization of that knowledge.

By accepting this change, planners will be able to better address the concerns and practices of planning in the context of the knowledge economy. New governance practices can be fostered by the promotion of inter-governmental and public-private partnerships and creating an environment that is conducive to the cooperation and success of these partnerships. And finally, by applying the principles of the knowledge economy and ICT (i.e. human capital development, establishing an entrepreneurial environment, digital and intelligent development and promotion, etc.) to economically distressed communities, regions and communities can broaden development opportunities and, in the process, have the capacity to compete more fully in the global knowledge economy.

These changes will not happen automatically. It is suggested that municipal and regional governments take the first step in setting an example to foster the change among planners that is needed in order to advance the state's development potential in the knowledge economy. Local and regional agencies need to work at accepting and changing their practice mindsets regarding the knowledge economy and ICT in order to mobilize the needed mindset change of urban and regional planners. Governments can serve as examples of e-government best practices (an example of intelligent development type ICT development) as well as by fostering the deployment of wireless and broadband Internet access to areas not yet served. Governments should try to link public services (schools, hospitals, police, etc.) digitally in order to foster improved communication between these agencies. Municipal and regional governments should provide funding to organizations and entrepreneurs pursuing business ventures pertaining to the knowledge economy and ICT. By acting as an exemplar, local and regional governments not only strengthen their development behavior in the context of the knowledge economy and ICT

but also demonstrate to the citizens and private-sector the possibilities that may result from mindset change.

Also critical to the advancement of urban and regional planning influence over the advancement of the knowledge economy is a shift in focus of planning education institutions. Planning in the context of the knowledge economy as well as in the expansion of both digital and intelligent ICT development should be incorporated into planning education curricula at both undergraduate and graduate levels. Without a solid educational foundation on which to base planning decisions in the framework of the knowledge economy and global networked society, planners will not have the ability to make decisions critical to this type of development in a practical setting. It can be argued that continuing education for practicing planners (i.e. conference sessions, workshops, etc.) is a means to integrate knowledge economy planning principles practically, however, a primary and integrated theoretical approach emphasized early in a planner's academic experience would provide them with the ability to make knowledge economy development decisions early in their practical careers. Planning organizations (i.e. American Planning Association, American Institute of Certified Planners, etc,) should also take steps to ensure members are keeping abreast of knowledge economy and ICT issues. While these organizations typically focus on continuing education of planners already working in a practical setting, a shift in focus toward basic planning education at the graduate and undergraduate levels would aid in solidifying a planners foundation in knowledge economy and ICT principles.

Two areas of the Michigan Planners and the Knowledge Economy Survey stand out as being consistently Below Average compared to the response from planners for

other questions of the survey; (1) cross-sectoral cooperation and success (Questions 8 and 9) and (2) familiarity with the knowledge economy and its importance to the future of Michigan's economy (Questions 6 and 7). These four questions, when examined as two groups of related questions, received the highest number of Below Average responses.

Planners representing regions indicating Below Average responses to these questions should examine the regional environment and local culture of cross-sectoral partnerships in Regions 1, 6, and 12 as these regions indicate Above Average responses for both cross-sectoral partnership cooperation as well as success. Cross-sectoral partnerships represent the advancement of an enterprise culture within a region; a fundamental planning practice element for success in the global knowledge economy (Corey and Wilson 2003).

Four regions indicate a Below Average familiarity with the knowledge economy while three regions perceive below an average level that the knowledge economy will be important to the future of Michigan's economy. These regions should examine the policy and practice of Region 12 in regards to practicing planning in the context of the knowledge economy as Region 12 is the only region indicating Above Average responses for both familiarity with the knowledge economy and the perception of the knowledge economy being important to the future of Michigan's economy.

### *5.3 Recommendations for Future Research*

The 2005 Michigan Planners and the Knowledge Economy Survey provides an indication of Michigan's urban and regional planners' responsiveness to the knowledge economy and ICT at a regional scale. It also provides updated responsiveness levels of Michigan's planning and development regions from studies completed in 2001 and 2003.

The regional, spatial, and temporal patterns established in this research, now enable further temporal research in order to track and analyze planners' responsiveness to the knowledge economy. In order to facilitate more informed and analytic research in the future, the following suggestions are made:

- Develop survey questions which are consistent with the five fundamental planning practice lessons developed by Corey and Wilson (i.e. human capital, enterprise culture, mindset change, new governance, and community and regional equity) (Corey and Wilson 2006);

- Future survey questions should be designed to provide data that are more analytic-friendly and readily available for analysis and interpretation;

- The three surveys examined in this research (i.e. the 2005 Michigan Planners and the Knowledge Economy Survey, "Michigan's Windows to a Global Knowledge Economy (Singh, 2003),"and "An Examination of Government-Led Broadband Infrastructure Initiatives in Michigan (Breuckman, 2002)") utilize various survey methods of gathering data from planners (i.e. nominal, ordinal, binary, interval, and ratio). It would be beneficial for future research to develop a single consistent form for surveying planners so that future analysis of survey iterations is directly comparable.

- Because private-sector planners have great influence over the planning activities within the state, this group of planners should be surveyed more extensively in the future;

- Increase the number of perspectives in which to analyze the data (i.e. target suburban vs. urban, planners of different races, areas of the state with significantly varied income, etc.);

- Surveys should be sent to a larger number of planners in order to ensure a larger response indicative of each region's variations (i.e. multiple surveys sent to different planners within the same agency, include more municipal planners, etc.). This would allow survey analysts to examine planner practice on a small-scale (i.e. county-level or small regional level); and

- Because this research revolves around the knowledge economy and ICT, it would be pertinent to conduct planner surveys via a digital medium (i.e. email surveys, Internet or web surveys, etc.). This could serve as an example to planners of a form of intelligent or advanced development of ICT.

By applying these recommendations to future research, more consistent patterns of responsiveness can be established and more targeted and appropriate policy recommendations suggested.

### *5.4 Conclusion*

The majority of Michigan planners responding to the 2005 Michigan Planners and the Knowledge Economy Survey are responsive to practicing planning in the context of the knowledge economy and ICT. From the analysis of survey results, clear spatial patterns of responsiveness can be seen in Michigan's fourteen planning and development regions. These patterns depict areas where responsiveness is needed as well as those regions which are Somewhat Responsive and Responsive. Also, by comparing responsiveness rankings from studies completed in 2001 and 2003, clear temporal patterns are evident among Michigan's regions. From these patterns, policy recommendations can be asserted in order to enable Michigan planning practice in the context of the knowledge economy.

Five elements have been identified by Corey and Wilson that are fundamental in guiding planning practice in the knowledge economy; (1) human capital (2) enterprise culture (3) mindset change (4) new governance and (5) community and regional equity. Four of these elements are directly addressed in the 2005 Michigan Planners and the Knowledge Economy Survey and indicate planner responsiveness to the knowledge economy.

Two areas are identified as being consistently Below Average for the majority of responding regions; (1) cross-sectoral partnership cooperation and success and (2) familiarity with and importance of the knowledge economy. By implementing policy and

planning practices targeting these two facets of planning practice, Michigan planners can aid in advancing Michigan in the global knowledge economy.

The most substantial and influential recommendation stemming from the analysis of the results of the survey is a change in the current regulatory framework guiding planning practice to mandate Michigan planners to include knowledge economy and ICT principles in their daily practice. This mandate, at a state, regional, and local level would provide Michigan planners with guiding policy in order to better prepare regions and communities for local development in the global knowledge economy.

Recommendations can also be established regarding future research of this type. Consistent and more readily analyzed questions should be incorporated into future surveys of Michigan planners so as to provide more rapid and reliable interpretation. In doing so, future patterns of planner responsiveness to the knowledge economy and ICT can be established and more regionally appropriate policy recommendations established.

The economy is changing; from one based on resource-intensive production to one based on the wealth-creation associated with the development of knowledge, creativity, and technology. Michigan urban and regional planners should have an influential role in shaping the future development of Michigan in the context of the global knowledge economy, facilitated by ICT, as they are in positions of influence to support the process of formulating knowledge economy community goals and solving community problems.

# APPENDIX

APPENDIX A

**Michigan Planners and the Knowledge Economy Survey**

Dear Michigan Planners and Economic Developers,

With the decline of manufacturing throughout the nation in the last twenty years, Michigan, a state with manufacturing deeply rooted in its automotive history, has fallen victim to the loss of jobs and investment large manufacturing firms brought to the state. Michigan's economy, as well as that of the nation, is focusing more on industries that capitalize on human creativity and knowledge, hence the emergence of the knowledge economy.

The knowledge base of an economy is defined as the capacity and capability to create and innovate new ideas, thoughts, processes and products and to translate these into economic value-added and wealth creation. The instrument to advance the knowledge economy is two-fold:

1. The development and promotion of information and communications technologies (ICT), and
2. The promotion and support of education and human capital development and the creative thought process as it relates to the economy.

The overall goal of this survey is to collect experiences and opinions from Michigan's planners that can be used to generate suggestions and approaches to engage and be effective in practicing local and regional planning in the global knowledge economy and network society.

The analysis of the information gathered in this survey will aid us in the development of tools and techniques to assist Michigan planners in advancing the knowledge economy and ICT infrastructure.

The estimated time to complete this survey is approximately ten to fifteen minutes. We appreciate your time and effort in aiding us with our study. Please try to finish the survey within two weeks time and return the completed survey in the enclosed addressed, stamped envelope. If you would like to receive a summary analysis of the results of this study, please fill out the section on the next page indicated as such.

Thank you for your input and we look forward to receiving your opinions and observations.

Most Thankfully,

Eric Frederick
Michigan State University
Graduate Research Assistant

This survey is part of a research project at Michigan State University in conjunction with the United States Economic Development Administration. Completing and returning this survey gives your consent to participate in this study. Participation is completely voluntary, you may choose not to participate at all, or you may refuse to

participate in certain parts of the survey, or only answer certain questions, or discontinue your participation at any time without penalty. Please note that while total confidentiality cannot be guaranteed, you will not be identifiable in any final reports or findings. Only summary results will be made available publicly. Confidentiality measures that will be taken include disassociating demographic information from the remaining survey questions, storing electronic results on a password protected computer, and keeping hard copies of all surveys in a locked office. Your privacy will be protected to the maximum extent allowable by law.

## I. Demographic Information

1. Name of the organization you represent: _____

2. Number of years you've been with your current organization: _____

3. Number of years you've been a practicing planner: _____

4. Size of your organization (number of professional planners): _____

5. Your organization's principal area of expertise (general planning, economic development, transportation, etc.):
_____

For summary results, complete the section below:

Name: _____
Address: _____
Address 2: _____
City/State/Zip: _____
Email: _____

For questions regarding survey questions please contact:

Eric Frederick
Graduate Research Assistant
Michigan State University
215 UPLA Building
East Lansing, MI 48824
frede110@msu.edu

If you have any questions or concerns regarding your rights as a study participant, or are dissatisfied at any time with any aspect of this study, you may contact – anonymously, if you wish –
Peter Vasilenko, Ph.D., Chair of the University Committee on Research Involving Human Subjects (UCRIHS)
Phone: (517) 355-2180
Fax: (517) 432-4503
Email: ucrihs@msu.edu
Regular Mail : 202 Olds Hall, East Lansing, MI 48824

## II. Planning Issue Importance

A. For each topic below, please indicate its **level of importance** (with one representing a low level of importance and a five representing a high level of importance) to you as a **professional**, to the **organization you represent**, and to the **citizens you serve**.

Table 15. Planning Issue Importance Input

| | Professionally | | | | | Organization | | | | | Citizens | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Less | | | | More | Less | | | | More | Less | | | | More |
| **Economic Development** | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| **Elementary and Secondary Education** | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| **Employment** | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| **The Environment** | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| **Growth Issues** (e.g. sprawl, sustainable development, etc.) | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| **Higher Education** | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| **Historic Preservation** | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| **Housing** | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| **Information and Communications Technology** (ICT) | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| **Land Use and Zoning** | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| **Planning Law** | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| **Pre-School Education** (e.g. Head Start, etc.) | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| **Transportation** | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |

B. In the space provided, please briefly explain why you ranked ICT as you did.

C. For each topic below, please indicate what you believe to be **the amount of emphasis that each topic will have and what emphasis each topic should have in the future**. For example, Economic Development will have (less, the same, or more) emphasis in the future but should have (less, the same, or more) emphasis in the future.

Table 16. Planning Issue Emphasis Input

| | Will have Future Emphasis | | | Should have Future Emphasis | | |
|---|---|---|---|---|---|---|
| **Economic Development** | Less | Same | More | Less | Same | More |
| **Elementary and Secondary Education** | Less | Same | More | Less | Same | More |
| **Employment** | Less | Same | More | Less | Same | More |
| **The Environment** | Less | Same | More | Less | Same | More |
| **Growth Issues** (e.g. sprawl, sustainable development, etc.) | Less | Same | More | Less | Same | More |
| **Higher Education** | Less | Same | More | Less | Same | More |
| **Historic Preservation** | Less | Same | More | Less | Same | More |
| **Housing** | Less | Same | More | Less | Same | More |
| **Information and Communications Technology** (ICT) | Less | Same | More | Less | Same | More |
| **Land Use and Zoning** | Less | Same | More | Less | Same | More |
| **Planning Law** | Less | Same | More | Less | Same | More |
| **Pre-School Education** (e.g. Head Start, etc.) | Less | Same | More | Less | Same | More |
| **Transportation** | Less | Same | More | Less | Same | More |

D. In the space provided, please briefly explain why you indicated ICT with the emphasis level you did.

_____

_____

## III. Information and Communication Technology (ICT)

A. For each topic below related to Information and Communications Technology, please indicate its **level of importance** (with one representing a low level of importance and a five representing a high level of importance) to you as a **professional**, to **the organization you represent**, and to the **citizens you serve**.

Table 17. ICT Issue Importance Input

| | Professionally | | | | | Organization | | | | | Citizens | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Less | | | | More | Less | | | | More | Less | | | | More |
| **e-Commerce** (e.g. promoting local establishments to conduct business online, commerce related features and links on municipal websites, etc.) | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| **e-Government Development and Promotion** (e.g. municipal websites with advanced features for citizens, training programs related to these features, etc.) | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| **Geographic Information Systems and Related Technology** (e.g. the use of computer technology to map and simulate and aid in the analysis of spatial features) | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| **High-Speed Digital Infrastructure Deployment** (e.g. broadband, DSL, etc.) | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| **Technology Education** (e.g. programs designed to aid those with little or no knowledge of technology) | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| **Technology Related Economic Development** (e.g. development targeting industries with a focus on advanced technology and the informatization of existing enterprises) | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| **Wireless Communications Development** (e.g. public-access wi-fi hotspots, municipal wireless networks, government promotion of its use, etc.) | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |

## IV. Information and Communications Technology Knowledge

In the space provided, please respond to each question.

A. How/why is it important for you to learn more about ICT as it relates to the mission and function of your organization?

Not very Important Very Important

1 2 3 4 5

B. Are you mandated, or expected, to know and/or learn about ICT as it relates to your organization? Please elaborate.

_____

_____

C. Do you feel ICT will become increasingly important to your organization in the future? Please elaborate.

_____

_____

D. What do you need or what tools would **help you** (besides more financing and time) in order to be **more knowledgeable and effective** in the area of ICT as it relates your planning commission to **the global knowledge economy and networked society**?

___ Workshops
___ Training Courses
___ Educational Literature
___ Seminars at Conferences
___ Other (explain)

_____

## V. Knowledge Economy Information

A. Please indicate the **ratio of traditional type to creative type industries in your area. "Creative"** type industries are defined as those industries that have their origin in individual creativity, skill, and talent and which have a potential for wealth and job creation through the generation and exploitation of intellectual property. **"Traditional"** industries include, but are not limited to, manufacturing, retail and wholesale trade, etc, while creative industries include, but are not limited to, the arts, advertising, technology, etc. If you would like more information on creative industries before answering this question, see http://www.britishcouncil.org/arts-creative-definition.htm

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Percentage of Traditional Industries: | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
| Percentage of Creative Industries: | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |

B. The Knowledge Economy is the "*capacity and capability to create and innovate new ideas, thoughts, processes, and products and to translate these into economic value and wealth.*" With this definition in mind, on the scale below, please **rate your personal exposure** to, and familiarity with doing planning in the context of the **knowledge economy**. How familiar are you with its principles and theory?

| Not very Familiar | | | | Very Familiar |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

C. When engaged in economic development activities, do you **explicitly seek** to incorporate principles of the knowledge economy into your work and actively seek to bring creative type industries or businesses to your planning area?

_____

_____

D. On the scale below, please indicate **how important** you feel the knowledge economy will be to the state's economy as a whole in the future, i.e., **what is your forecast**?

Not very Important Very Important

1 2 3 4 5

Please explain why you indicated the level of importance that you did:

_____

_____

## VI. Cross-Sectoral Cooperation

1. **Cross-sectoral cooperation and partnerships** are an important element to the success of the knowledge economy as it relates to creating and maintaining an enterprise culture within a community. Partnerships can include, but are not limited to **public-private partnerships, non-profit and for-profit institutional arrangements, etc.** These partnerships should support entrepreneurship and innovation within the region. On the scales below, **please rate** the climate in your jurisdiction in relation to **cross-sectoral cooperation and partnerships** as well as the **success of these partnerships** in accomplishing their mission

Not very Cooperative Very Cooperative

1 2 3 4 5

Not very Successful Very Successful

1 2 3 4 5

In the space provided, please describe some of the barriers and facilitators to such partnerships in your area.

Barriers: _____

Facilitators: _____

_____

_____

2. Similar to the previous question, **inter-governmental sector cooperation** is also an important factor in the success of the knowledge economy (health care, education, social services, etc.). On the scales below, **please rate** the level of **inter-governmental cooperation/success** in your jurisdiction. A score of one would indicate very little cooperation/success and a five would indicate a high level of cooperation/success between entities.

Not very Cooperative Very Cooperative

1 2 3 4 5

Not very Successful Very Successful

1 2 3 4 5

In the space provided, please describe some of the barriers and/or facilitators of the governmental partnerships in your area.

Barriers: _____

_____

Facilitators: _____

_____

## VII. Economically Distressed Communities

1. The United States Economic Development Administration defines economically distressed communities as those that experience substantial barriers that inhibit the growth of their local economies and limit their ability to complete effectively in regional, national, and global markets. With ICT and the Knowledge Economy in mind, **please indicate the level to which you apply these two elements to economically distressed communities in your daily practice as a planner.**

| Less Use | | | | More Use |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

In the space provided, please describe some of the barriers and/or facilitators of using ICT and Knowledge Economy principles in economically distressed communities.

Barriers: _____

_____

Facilitators: _____

_____

## VIII. Final Comments

Please feel free to comment on any other issues that would enable us to offer suggestions for effective approaches to local and regional planning practice in the context of the global knowledge economy and network society.

_____

_____

_____

_____

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